The Role of Discursive Opportunity in Contesting Public Issues: The Struggle Over Food Security Discourse

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Abstract

Organisations wield extraordinary power in contemporary society. Much of this power is exercised through the strategic use of language as a variety of actors and organisations compete with each other, and with governmental authorities, to influence the political system (Hoffman & Ford 2010). The discursive struggles that take place around contested issues such as modern slavery, climate change and global food security can be conceived of as public issue framing contests (Dahan & Gittens 2010; Ryan 1991). The extent to which organisations are able to engage effectively with discursive opportunities presented by the socio-political context affects the level of influence they have on the outcomes of such contests (Koopmans & Statham 1999). Consequently, some are able to play a much more prominent role than others in shaping public discourse and influencing how shared global challenges are responded to, including what resources get deployed, where, and by whom (Boin et al 2008). This thesis takes a critical perspective on discourse in organisations in order to explore how issues of power and political agency affect the relative capacity of different organisations to engage with discursive opportunities to influence the outcomes of public issue framing contests.

The study adopts a discourse analytic approach to explore organisational discourse around the highly contested issue of agricultural biotechnology as it relates to wider debates about global food security. Deploying a frame analysis methodology developed by Creed et al (2002) to deconstruct the communications of four focal organisations, the research identifies key themes and frames, exploring explicit frame clashes, implicit frame conflicts, and contested frame elements as they emerge. Investigating how the frames are put to work in the public arena, the analysis examines three periods of intense struggle in the public debate over agricultural biotechnology. It reveals how competing organisations engaged with discursive opportunities offered by the wider socio-political context to shape public understandings of agricultural biotechnology as a response to the issue of global food security.

Three important theoretical outcomes emerge from the research relating to i) the relative political agency of different organisations in relation to discursive opportunities, ii) how organisations engage with stable and volatile discursive opportunities, and iii) the role of discursive opportunities in the struggle for discursive space. Specifically, the research demonstrates how the strong traditional power-base of corporations facilitates their engagement with stable discursive opportunities, reducing their need to engage with more

risky volatile discursive opportunities. In contrast, the limited traditional power-base of CSOs compels them to engage with volatile discursive opportunities. Whilst risky, this can in fact facilitate the differentiation of claims from their corporate framing competitors, counteracting frame co-optation and creating space for discursive struggle. The analysis identifies and newly theorises 'opportunity framing' as an effective means of responding to volatile discursive opportunities. Whilst much of the framing literature de-politicises the framing process, the current research provides a more nuanced understanding of how discursive opportunities facilitate and constrain the framing attempts of organisational actors with distinct interests and agendas.

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Glossary of Key Framing Terms[1]

Appeals to principle	A frame reasoning device through which certain general precepts are upheld and moral appeals are made.
Catch-phrase	A framing device through which a frame is suggested and its position summarised through use of a title, tag-line or slogan.
Collective action frame	An interpretive frame developed with the intention of mobilising support for an issue or campaign.
Consequences	A frame reasoning device through which analysis of the consequences of the focal issue is presented.
Core frames	A frame sponsor's main repertoire of commonly deployed issue frames
Depiction	A framing device through which a frame's principal subject is characterised in a particular way, sometimes through metaphor or example, or simply through colourful description.
Diagnostic framing	A core framing task involving the identification of a problem and attribution of blame/responsibility.
Exemplar	A framing device through which real events are referenced to enhance understanding of the subject.
Frame	An interpretive schema which helps us to make sense of the world around us.
Frame amplification	Embellishing, clarifying, or invigorating existing values or beliefs to ensure their continued resonance with cultural values.
Frame bridging	Linking frames which are ideologically compatible though structurally unconnected in order to garner further support.
Frame extension	Stretching the portrayal of a frame and its sponsor's interests to include issues that are of importance to potential supporters.
Frame sponsor	The actor or organisation that assembled frame elements into a package of meaning to suit their particular interests.
Frame transformation	Changing or developing old understandings or meanings within a frame and formulating new ones.

[1] Framing terminology is defined with reference to Creed et al (2002a), Dahan & Gittens (2010), Gamson & Lasch (1981), and Snow & Benford (1988).

Framing	An active process through which language and other symbolic devices are used to create new interpretive frames and/or reinforce existing ones.
Key signifier	A particularly prominent frame element which evokes many of the frames core messages in a condensed form.
Metaphor	A framing device through which one thing is identified through reference to another.
Motivational framing	A core framing task involving the elaboration of a rationale for action.
Opportunity framing	A framing process through which a frame sponsor responds to a volatile discursive opportunity through context-specific elaboration of a core frame.
Prognostic framing	A core framing task through which solutions, strategies, tactics and targets are identified.
Public issue	An issue defined by i) public perception of a gap between an organisation's expected performance and its actual performance, ii) debate about the meaning of the problem, its causes, and how to address it, and iii) uncertainty surrounding which response best serves the public interest.
Public issue framing contest	A symbolic contest between organisations in the public domain, undertaken with an arsenal of discursive devices such as metaphors and catch phrases.
Roots	A frame reasoning device through which attention is drawn to how a frame analyses & locates causality for the issue at hand.
Signature elements (or frame elements)	The discursive symbols/devices which together make up a frame e.g. metaphors, catch-phrases, images, exemplars.
Signature matrix	A table summarising the signature elements of a frame, including framing devices (metaphors, exemplars, catch-phrases, visual images, and depictions) and reasoning devices (roots, consequences, and appeals to principle).
Theme	A recurring idea characteristic of a frame.
Visual image	A framing device through which the core package of ideas is suggested by way of an icon or other image.

Acronyms & Abbreviations

AAF	Alternative Agro-Food
ACB	African Centre for Biodiversity
AP&P	Asia Pulp & Paper
CAP	Common Agricultural Policy
CBD	Convention on Biological Diversity
CDA	Critical Discourse Analysis
CFS	Committee on World Food Security
CSO	Civil Society Organisation
DOS	Discursive Opportunity Structure
EPA	US Environmental Protection Agency
EU	European Union
FAO	Food and Agricultural Organisation (of the United Nations)
FDA	US Food & Drug Administration
FoE	Friends of the Earth
GM	Genetic Modification
GMO	Genetically Modified Organism
IAASTD	International Assessment of Agricultural Knowledge, Science & Technology for Development
IPR	Intellectual Property Rights
ISAAA	International Service for the Acquisition of Agri-biotech Applications
PR	Public Relations
POS	Political Opportunity Structure
RAFI	Rural Advancement Foundation International
SADA	South African Department of Agriculture
SADC	Southern African Development Community
TTIP	Transatlantic Trade and Investment Partnership
UDHR	Universal Declaration of Human Rights
UN	United Nations
USAID	United States Agency for International Development
WEMA	Water Efficient Maize for Africa
WFP	World Food Programme
WHO	World Health Organisation
WTO	World Trade Organisation

Introduction

Research Focus

Organisations wield extraordinary power in contemporary society, much of which is exercised through their public communications (Hoffman & Ford 2010). Organisational discourse is inherently strategic in nature, in that organisations "struggle to 'fix' meaning in ways that will serve their particular interests" (Mumby 2004, p.237). In doing so they shape public discourse, influencing the way we understand the world around us. This is no secret to multinational corporations; in the UK alone, advertising expenditure in 2017 reached an all-time high of £22.2 billion (Advertising Association 2018). However, it is not through advertising alone that corporations exert their influence. The lobbying networks through which corporate elites are linked to policymakers extend their influence into the political sphere, where strategies such as furnishing policymakers with reports which promote their preferred agendas help to secure corporate interests (Conrad 2011). Deetz argues that the extent of corporate encroachment into non-market aspects of society amounts to "a colonization of public decision making and of the every-day life world" (1992, p.ii). As corporations continue to grow in size and reach, understanding how the power they hold is structured, exercised and reinforced is an important prerequisite to holding them accountable. The study of corporate discourse is central to this endeavour. Examining the communications that corporations choose to transmit, it is possible to move towards a better understanding of how corporations gain, maintain and exert the social control that in many cases serves to defend against tighter regulation, push through more favourable legislation, reinforce their licence to operate, and maintain the social, political, and economic status quo.

Of course, corporations aren't the only organisations whose communications impact upon society. Waymer claims that "all organizational discourse (mis)represents various publics' interests it is supposed to represent", but that this is particularly significant for governments who are expected to serve all people's interests (2009, p.24). Civil society organisations (CSO), though often considered to be acting in the public interest, may also misrepresent the interests of some groups and directly conflict with others'. Successful social movement campaigns attest to the fact that it is not only corporate discourse which holds power. For example, in 2013 Asia Pulp and

Paper (AP&P) finally committed to a no-deforestation policy after years of pressure from environmental organisations, pledging to help restore natural forest throughout Indonesia. This led to similar commitments from other key industry players such as Asia Pacific Resources International Limited and Cargill (Gunther 2015). An equally effective campaign throughout the 1990s put Nike under the spotlight for poor labour conditions and abusive practices amongst its suppliers. This eventually resulted in extensive changes being implemented throughout the company's supply chain including improved monitoring and reporting systems (Conrad 2011). Whilst in both of these cases there undoubtedly remain issues and challenges, the changes achieved are not insignificant, demonstrating the power of social movements which are able to effectively harness and shape public discourse.

A growing body of research is concerned with how organisational discourse creates and shapes social reality, and with examining how the interests of some organisations are promoted whilst others are marginalised (see for example Adams & Shriver 2010; Dahan & Gittens 2010). Power, in this context, can be conceived of in terms of the extent to which organisations are able to access and control public discourse (Van Dijk 2011). One of the ways in which organisations control public discourse is through the use of rhetoric, a form of discourse characterised by the strategic use of language and symbols to create meaning, and to persuade. Analysis of organisational discourse and rhetoric can therefore provide unique insights into how, and to what ends, organisations communicate with their audiences, noting "the actions and strategies of organizations using power responsibly, and [challenging] the actions and strategies of those using it irresponsibly" (Hoffman & Ford 2010, p.17). In order to obtain these kinds of insights, the research takes an interpretive epistemological approach which recognises the important role of language in the way knowledge of the world is socially constructed. In doing so, it acknowledges that power-knowledge relationships can reinforce social structures that privilege powerful interests and reinforce patterns of domination (Heracleous & Hendry 2000).

Understanding organisational discourse is particularly important when it comes to public issues. Public issues are defined by three key characteristics:

i) A group of actors perceive a gap between their expectations of an organisation's performance and its actual performance, which in some way affects the public interest/wellbeing.

ii) There is public debate over the meaning of the problem, its causes, and how to address it.

iii) There is uncertainty regarding which response best serves the public interest.

(Dahan & Gittens 2010)

All members of society invariably have a stake in some such issues, whether they relate to deforestation as in the AP&P example, climate change on a broader scale, forced labour, tax, or any number of other concerns. But not all members of society have a say in how those issues are defined and responded to. Given that the outcomes of debates around such public issues have significant social, political and environmental implications, it is important to ask – *who gets to decide?* One approach to answering this question is to conceptualise debates around public issues as 'framing contests' (Ryan 1991).

Frame theory emerged from the discipline of Sociology in the 1970s, and has since been widely engaged with by scholars from a range of disciplines. The theory is based on the idea that 'frames', or schemata of interpretation, help us to understand the world around us, and to attribute meaning to events as they unfold (Goffman 1974). Frame theory particularly gained traction in the study of social movements, helping to conceptualise the discursive strategies deployed by activists seeking to recruit, motivate and mobilise movement participants in collective action (Benford 1987; Benford & Hunt 1994; Benford & Snow 2000; Gamson 1992, 1995; Gamson & Lasch 1981; Snow 2008; Snow & Benford 1988). From this extensive literature, the concept of 'framing contests' emerged as an approach to studying the discursive struggles that take place between actors promoting competing frames, particularly between social movements and their opponents (Ryan 1991). These struggles invariably take place in a public, multi-organisational setting, where actors with a wide range of interests and agendas compete to promote their desired interpretation of an issue, and where significant power differentials are at play (Dahan & Gittens 2010). These are precisely the kinds of struggle which characterise public issue framing contests.

It is important to understand the dynamics of such framing contests, given that their outcomes not only affect public perceptions of important issues, but also influence policy decisions which have a direct impact on how they are responded to. However, frame theory has been criticised for its inability to account convincingly for the factors that help to determine the outcomes of issue framing contests beyond the simple claim that frames which resonate with their audiences are more effective (Benford & Snow

2000). One of the factors receiving insufficient attention is that of context. The concept of discursive opportunity structure has been proffered as one way of accounting for the influence of contextual factors on the outcomes of framing contests (Koopmans & Statham 1999). Referring to features in the socio-political context to which a frame sponsor can appeal in order to effectively influence public discourse, the concept remains underdeveloped in the literature. The current research uses frame theory as an approach to understanding how discursive struggles between organisations with competing and conflicting interests play out in the public domain. Acknowledging that the production, reproduction, contestation and transformation of public discourse is an inherently political process, it adopts a political agency perspective which considers both traditional and discursive forms of organisational power. In doing so, it pushes towards a more nuanced understanding of how discursive opportunities facilitate and constrain the framing attempts of organisational actors with distinct interests and agendas. This is an important step towards exposing and challenging the mechanisms through which powerful organisational actors are able to influence public discourse whilst subjugating the voices of others.

Food insecurity is increasingly recognised as a significant threat to global stability. The language of food security is outwardly unifying. Who could contest the notion that all people, at all times, should have access to "sufficient, safe, nutritious food to maintain a healthy and active life" (WFP 2018)? However, upon looking beneath the surface of such seemingly innocuous claims, it becomes clear that behind the apparent consensus lie a broad range of competing perspectives (Mooney & Hunt 2009). Examining food security discourse provides an opportunity to gain insight into the overlapping, competing and conflicting interests and agendas of different organisational actors engaging with the issue, each of which has an important stake in how the concept of food security is understood and responded to. These include multinational corporations, political actors, multilateral organisations and CSOs. The highly contested issue of agricultural biotechnology (henceforth also 'agri-biotech'), promoted by some as a response to food security concerns, provides a particularly rich context in which to situate the current research. A heated public issue framing contest has raged around agri-biotech since the commercialisation of the first genetically modified (GM) crops in the 1990s. The social and political relevance of this debate has never subsided, exemplified by the level of public attention received by the recent controversial acquisition of agri-biotech pioneer Monsanto by the multinational pharmaceutical company Bayer. The current research therefore explores the public issue framing

contest around agricultural biotechnology as a response to concerns over global food security, investigating how different organisational actors have sought to influence public discourse. Understanding the way food security is discussed in the international public arena is fundamental to ensuring effective policy decisions which protect and improve the livelihoods of those most vulnerable to the impacts of global food insecurity.

Aims & Research Questions

The research has four main aims. The first of these is to contribute to the theoretical refinement of the concept of discursive opportunity structure by elaborating on preliminary insights into the relative stability or volatility of discursive opportunities (McCammon et al 2007). The literature acknowledges that the 'structure' in discursive opportunity is a variable element, suggesting that more volatile discursive opportunities or external 'jolts' might provide contextual openings for actors to shape public discourse or assign responsibility for an issue (Ferree et al 2002; Reinecke & Ansari 2016). However, as yet research has uncovered little about how this variation in stability affects the way organisations engage with discursive opportunities. This research therefore aims to explore how different organisations use stable and volatile discursive opportunities to contest public issues.

The second aim of the research is to critically examine how issues of power affect the political agency of organisations seeking to shape discourse around contested public issues through engagement with discursive opportunities. Research has begun to explore the relationship between power and discursive opportunity. The literature suggests, for example, that discursive opportunities can facilitate 'discursive obstruction' by elite actors (Shriver et al 2013), and frame co-optation by powerful organisations (Adams & Shriver 2010). The indication is that the nature of public discourse has a bearing not only on whether certain frames resonate, but also on how susceptible they are to obstruction or co-optation. Furthermore, some scholars suggest that organisations may be able to actively construct discursive opportunities (Ferree et al 2002; Reinecke & Ansari 2016). This research therefore aims to contribute to the literature by exploring the relative political agency of different organisations, critically analysing how they mobilise both traditional and discursive power resources in order to construct and access discursive opportunities to shape the outcomes of public issue

framing contests. Specifically, it seeks to explore how differentials in political agency affect the ways in which different organisations engage with stable and volatile discursive opportunities.

Thirdly, the research aims to gain insight into the interests of competing organisations by conducting a deeper level of frame analysis than is typical of the framing literature. Though framing contests are often characterised by explicitly clashing claims, competing organisations will also sometimes make outwardly similar statements to promote their divergent interests (Adams & Shriver 2010; Mooney & Hunt 2009). The research therefore seeks to "pierce the veil" of organisational discourse, exposing some of the implicit conflicts taking place between organisations engaging in public issue framing contests (Creed et al 2002a, p.45). Framing research often takes place at a broad thematic level, neglecting to explore the intricacies of how different frame elements work in conjunction to achieve particular ends (Creed et al 2002a). Furthermore, it often fails to account for changes in frame content over time as framing strategies adapt and evolve (Benford 1997). The current research therefore adopts a novel methodology combining the use of 'signature matrices' with critical discourse analysis (CDA) and rhetorical analysis in order to deconstruct and analyse issue frames and gain insight into the overlapping, competing and conflicting interests and agendas of different organisational actors (Gamson & Lasch 1981). Taking a longitudinal approach, the research remains sensitive to changes in frame content throughout the life of a framing contest.

Finally, the research seeks to explore public issue framing contests in the rich and politically relevant context of global food security. The research adopts food security as its issue focus on the basis that it is a contested public issue with significant social, political, economic and environmental impact. Previous research has highlighted the highly contested nature of food security discourse, emphasising how the lack of consensus around what food security is and how we should respond to the issue have had a negative impact on the coherence of policy decisions (Lang & Barling 2012; Mooney & Hunt 2009). The literature also highlights the overwhelming power of corporations in the food systems domain, suggesting that corporate actors dominate food security discourse whilst other voices often struggle to be heard (Adams & Shriver 2010; Fontoura et al 2016). Consequently, the research aims to gain further insight into the power dynamics at play in the public debate over global food security in the hope of

exposing the power imbalances that inhibit effective policy making and legitimate challenges to dominant food paradigms.

The research questions have been designed to facilitate the research in meeting these specific aims. The central research question is the theoretical linchpin around which the research takes shape. Two context-specific supporting research questions have been developed. These enhance the research by providing contextual insights which pave the way for answering the central research question.

Central Research Question:

How do organisations use discursive opportunities to contest public issues?

Supporting Research Questions:

What agri-biotech issue frames get activated in public food security discourse?

How do organisational interests shape the framing process?

Thesis Outline

The second chapter of the thesis starts to set the scene for the research by presenting an in-depth literature review. Examining the literature which provides the theoretical foundations of the research, the chapter presents a critical analysis of the current state of knowledge relating to discourse in organisation studies. It expresses a need for research which helps shed light on how organisational discourse influences the way we understand and respond to issues in the world around us, particularly given the enormous power and reach of contemporary organisations. It also introduces the literature on issue framing which provides the theoretical basis for the methodological approach, building a case for using frame theory to explore organisational discourse. The chapter identifies gaps in the literature which shape the aims and objectives of the research, focusing on how organisations engage in strategic framing activity to influence the outcomes of framing contests over important public issues. Global food security is introduced as a highly contested issue with important socio-political implications. The public issue framing contest around agricultural biotechnology as a response to concerns over global food security is identified as a particularly rich debate, providing the contextual grounding for the research.

The third chapter delves deeper into the theoretical positioning of the research, exploring the theory with which it engages in greater detail. It runs through developments that have unfolded in the refinement of frame theory, highlighting where there is potential to contribute to the literature. The chapter outlines some limitations of framing research relating to insufficient construct clarity, failure to account for the multi-organisational setting in which framing contests take place, neglect of questions of power in framing research, and a lack of research studying framing contests as they unfold over significant periods of time (Benford 1997; Benford & Snow 2000; Carragee & Roefs 2004). The issue of context is also highlighted as an area in which frame theory currently falls short. The concept of discursive opportunity structure is introduced as a key conceptual component of the research, helping to theorise how features of the socio-political context can enable or constrain the framing activities of organisations in different ways (Koopmans & Olzak 2004). Existing literature which has sought to develop the concept is highlighted, paying particular attention to the issues of stability, volatility, power, and political agency (McCammon et al 2007; Shriver et al 2013). The chapter concludes by identifying areas in which there is considerable scope for developing and refining the concept, and subsequently for contributing to a more nuanced understanding of why certain issue frames gain traction whilst others never do.

Chapter four focuses on the methodological approach of the research. It begins by laying out the philosophical and theoretical foundations underpinning the research, elaborating on its interpretive approach, based on a broadly constructionist ontology. The chapter progresses to explain the research process in detail, discussing the rationale for the approach to data gathering and analysis. This involves unpacking the two phases of data gathering and analysis, including the different aspects and levels of frame analysis, CDA, and rhetorical analysis. It then explains the role of documentary data in facilitating the research process and elaborates on the novel approach to discursive opportunity analysis. The central research question and supporting questions which guide the research process are introduced. The chapter moves on to discuss how the issue-focus of global food security, and specifically agricultural biotechnology, facilitates the research by providing a rich discursive context in which to study public issue framing contests. It introduces the key events and focal organisations around which the analysis is conducted, and concludes by considering the issues of reflexivity, research ethics, and research quality criteria.

The next two chapters present the findings of the research. Chapter five introduces the different frames that were identified through analysis of the texts dealing with agricultural biotechnology as a response to the issue of food security. The frames are each described and analysed in detail, including exploration of their diagnostic, prognostic, and motivational characteristics (Snow & Benford 1988), as well as their organisational sponsors, intended audiences, and the arenas in which they're put to work (Creed et al 2002a). The chapter then engages in a deeper level of analysis, exploring links between different frames and delving beneath the surface to expose implicit meanings and assumptions. This involves critical analysis of explicit frame clashes, implicit frame conflicts, and contested frame elements, and serves to shed light on the interests and agendas of the different organisational actors involved in the public issue framing contest over agricultural biotechnology. Chapter five therefore addresses the two context-specific supporting research questions, namely *i) What agri-biotech issue frames get activated in public food security discourse?* and *ii) How do organisational interests shape the framing process?* In doing so, it paves the way for addressing the central research question in the following chapter.

The second stage of the findings is presented in chapter six, which focuses on discursive opportunities in the struggle over food security discourse. It seeks to answer the central research question: *How do organisations use discursive opportunities to contest public issues?* The chapter identifies three key events which have occurred in the history of agricultural biotechnology, and which have been characterised by intense public debate and media attention. It analyses the framing strategies employed by different organisations throughout these events in order to reveal how they engaged with discursive opportunities to shape understandings of agri-biotech as a response to the issue of food security. The chapter investigates which frames were deployed, how they interacted with each other, and how certain frames succeeded in dominating the debate. The analysis highlights significant differences in the way organisations engage with stabile and volatile discursive opportunities. It identifies 'opportunity framing' as a process through which organisations respond to risky but potentially fruitful volatile discursive opportunities. In contrast, the appropriation of language and frame co-optation prove to be a more long-term and less risk-laden approach to issue framing through engagement with stable volatile discursive opportunities. The chapter engages in critical reflection around questions of power and political agency. Frame co-optation is conceptualised as means through which corporate actors minimise space for

discursive struggle, whilst volatile discursive opportunities represent newly delimited spaces in which CSOs can differentiate their claims from corporate framing opponents.

Chapter seven brings together the findings and analysis to theorise at a broader level about the role of discursive opportunity in public issue framing contests, and to connect the research back to the literature. It is structured around the discussion of three main theoretical outcomes which emerged from the research, relating to i) the relative power and political agency of different organisations in relation to discursive opportunities, ii) how organisations engage with stable and volatile discursive opportunities, and iii) the role of discursive opportunity in the struggle for discursive space. The chapter elaborates on the findings, asserting that the strong traditional power-base of corporations facilitates their engagement with stable discursive opportunities, and reduces their need to engage with more risky volatile discursive opportunities. Conversely, the limited traditional power-base of CSOs compels them to engage with volatile discursive opportunities which whilst risky, facilitate the differentiation of their claims from their corporate framing competitors. This strategy serves to counteract corporate frame co-optation by creating space for discursive struggle. The chapter concludes by reflecting on key methodological insights gained through the research process and discussing some of the opportunities and challenges specific to the public issue framing contest over global food security.

Chapter eight concludes the thesis by drawing together the arguments and insights from the previous chapters in order to synthesise the key learnings from the research and discuss their implications. It starts by presenting a brief summary of the thesis, demonstrating how the research questions have been answered and the research aims met. It then progresses to unpack the theoretical and empirical contributions of the research, discussing the practical implications arising for different organisational actors. Finally, some limitations of the research are acknowledged and potential avenues for further research are discussed, before closing with some concluding remarks.

Summary

This introductory chapter has explained the contextual background of the research, situating it in relation to existing literature. It has summarised the aims of the research and articulated the central and supporting research questions, indicating where the research seeks to make a contribution to the literature. In closing, the chapter has presented a brief overview signposting the structure of the thesis.

Literature Review

Introduction

The purpose of this chapter is to introduce the literature which provides the theoretical foundations of this research. Specifically, it presents a critical analysis of the current state of knowledge relating to discourse in organisation studies. Acknowledging that in today's society many organisations wield considerable power, mobilising much of this discursively, a case is made for research which helps shed light on how organisational discourse influences the way we understand and respond to issues in the world around us (Hoffman & Ford 2010). In making this case, the chapter sets up the rationale for the research, identifying gaps in the literature which help to shape its specific aims and objectives. The chapter progresses to introduce the Sociological concept of issue framing and core literature relating to frame theory which provides the theoretical basis for the methodological approach (Benford & Snow 2000; Creed et al 2002a; Gamson & Lasch 1981). It justifies the use of frame theory as a sound approach to the exploration of organisational discourse, emphasising the value of the concept of framing contests for gaining insight into the ways in which organisations seek to promote their preferred interpretations of important public issues, and in doing so push their desired response (Dahan & Gittens 2010; Ryan 1991). Understanding how organisations engage in this kind of strategic framing activity, and how they challenge, resist and rebut the claims of competing organisations, is of upmost importance given the contested nature of important public issues such as climate change, migration, and modern slavery. The outcomes of these debates shape the ways in which shared global problems are responded to, and as such have a direct impact on how effectively they are addressed. Global food security is introduced as one such contested issue and unpacked as the context for the research. The public issue framing contest around agricultural biotechnology as a response to concerns over global food security is highlighted as a rich debate in which to locate the research. The chapter concludes by providing a brief summary of the literature reviewed.

Discourse in Organisation Studies

According to Alvesson and Kärreman, language "is increasingly being understood as the most important phenomenon, accessible for empirical investigation, in social and organizational research" (2000, p.1126). This 'linguistic turn' in the social sciences has in turn fostered increasing interest in research focusing on discourse (Heracleous & Barrett 2001). This is reflected in the publication of a number of special issues on the topic of organisational discourse in eminent journals such as the *Academy of Management Review* (Boje et al 2004), *Human Relations* (Oswick et al 2000a) and *Organization* (Oswick et al 2000b) as well as several books and textbooks on the subject (Grant et al 2004). Though this flurry of activity represents an encouraging trend towards interesting new avenues of research in organisational discourse, some scholars have expressed concern at the lack of consistency in the way discourse, and key related terms such as text and context, are defined (Leitch & Palmer 2010). This lack of consistency has led to a broad range of concepts and methods falling under the umbrella of discourse in social science and organisation studies, breeding a degree of confusion regarding its use (Grant et al 1998; Keenoy et al 1997). Failure to nail down clear definitions has led to the publication of some research in which discourse "comes close to standing for everything, and thus nothing" (Alvesson & Kärreman 2000, p.1128). Consistency in the use of key terms and concepts relating to discourse is thus vital to maintaining construct clarity and presenting meaningful and coherent research (Suddaby 2010).

Broadly speaking, discourse analysis can be understood as "utilizing textual data in order to gain insights into particular phenomena" (Heracleous & Hendry 2000, p.1254). However, beyond this broad understanding there lie a plethora of perspectives both on what discourse is and how it should be analysed. Whilst some researchers prefer to limit the study of discourse to talk and written text, for example, discourse can also be viewed as referring to social practices and physical or symbolic artefacts (Cunliffe 2008). Parker defines discourse simply as "a system of statements which constructs an object" (1992, p.4), whilst other scholars place more emphasis on how meaning is mediated through language (Boje et al 2004) and thus how standards for what is considered 'normal' or 'acceptable' are produced and redefined (Hardy & Maguire 2010). Grant et al provide a useful working definition of organisational discourse as "the structured collections of texts embodied in the practices of talking

and writing…that bring organizationally related objects into being as these texts are produced, disseminated and consumed" (2004, p.3).

Conceptualising Discourse

Heracleous and Hendry specify three ways of conceptualising discourse in the context of organisational research. *Interpretive* approaches conceptualise discourse as "communicative action that is constructive of social and organizational reality" (2000, p.1252). *Managerialist* approaches view discourse as a tool which managers can use to facilitate processes such as effective leadership and organisational change. Both interpretive and managerialist approaches to the study of organisational discourse give primacy to the role of human agency in using discourse to shape understandings of a situation. In contrast, *critical* approaches to organisational discourse tend to privilege the role of structure, "giving primacy to how human agency is constituted and may even be lost in the webs of discursive structures and the patterns of social domination that these structures surreptitiously help to legitimize and sustain" (Heracleous & Hendry 2000, p.1252).

The perspective adopted here is consistent with the critical approach, conceptualising discourse in terms of the power–knowledge relationships which shape subjects' identities and construct social structures of domination. However, in adopting this perspective, the current research does not seek to deny or suspend agency. Instead, it strives towards a conceptualisation of discourse

> "that can address considerations of both structure and action, as well as their dynamic interrelation, and that allows us to study and understand both the functional aspects of organizational communication and the deeper structural properties of discursive practices within organizational contexts"
>
> (Heracleous & Hendry 2000, p.1253)

In doing so, it draws attention to the power resources deployed by different organisational actors in order to create, privilege and reinforce discourses that complement their own agendas (Marshak & Grant 2008). Organisations are conceived of as "political sites, where various organizational actors and groups struggle to 'fix' meaning in ways that will serve their particular interests" (Mumby 2004, p.237). The power dynamics at play between different organisational actors therefore shape the

struggles over public discourse that determine which voices dominate whilst others are stifled.

Discourse, Power & Political Agency

A standard conception of agency refers, broadly speaking, to "the performance of intentional actions" (Schlosser 2015). It includes, but is not limited to, "the aims, interests, activities, capabilities and ideologies of individual or collective entities" (MacLean 1999, p.181). To speak of *political* agency might suggest a focus on the kind of 'emancipatory agency' characteristic of the counter-hegemonic struggles often associated with CSOs. However, political agency refers as much to dominant forms of agency, or 'taken-for-granted ways of acting', as it does to the former (MacLean 1999, p.181). Indeed, "a deeper notion of political agency draws attention to the beliefs, values, and world views that maintain habits and the status quo" (O'Brien 2015, p.1171). It follows, then, that

> "political agency is not restricted to participation in social movements or institutional political processes but, rather, it refers to a variety of individual and collective, official and mundane, rational and affective, and human and non-human ways of acting, affecting and impacting politically"
>
> (Häkli & Kallio 2014, p.181)

Questions of political agency are intertwined with those of power. Not only is political agency unevenly distributed, but the way power is configured also shapes the possibility for its enactment. Whilst a narrow view of political agency might be restricted to traditional notions of power which focus predominantly on formal authority and dependency (Phillips & Hardy 1997), the current research takes a broader view. Building on the critical approach to discourse outlined above, this broader view of political agency recognises that questions of power shouldn't be solely reduced to formal authority and dependency (Phillips & Hardy 1997), nor to capabilities and intentions (MacLean 1999). Instead, it takes a discursive perspective which;

i) conceives of power as embedded in a network of discourse relations,

ii) highlights how the subject of discourse is socially produced by the systems of power which surround it,

iii) acknowledges that different groups/societies have their own 'politics of truth' regarding which discourses they accept as true.

(Phillips & Hardy 1997, p.171)

This discursive perspective takes the view that power is exercised through the modification of discourse, acknowledging that this is an inherently political process. It therefore makes room for a revised understanding of political agency which recognises the significance of a wider range of modes and manifestations of power (including, for example, the mobilisation of symbolic cultural resources). This perspective can help to theorise how "organisations with little power from a traditional viewpoint may still be able to influence the process through their interventions in the discursive production of the underlying concepts" (Phillips & Hardy 1997, p.172). It also points to the significance of discursive opportunities in public issue framing contests, raising questions about how socio-political contextual factors might influence the ability of more/less (un)traditionally powerful organisations to shape public discourse, as will be discussed in more detail in the coming sections.

Levels of Discourse

The majority of research on organisational discourse deals with the study of social texts at micro and meso levels and is primarily concerned with discourse *within* organisations. It focuses on conversations, narratives and stories, and day-to-day *internal* organisational communications, and is often associated with the study of issues such as organisational change, organisational processes, management ideologies, and organisational identity (Marshak & Grant 2008; Heracleous & Hendry 2000; Grant & Hardy 2003; Rindova et al 2004; Oswick et al 2000a). In contrast, the conversation that this thesis seeks to contribute to uses discourse analysis to explore how organisations engage with contested issues in the international public arena. It focuses on the domain of *rhetoric* in the study of organisational discourse, which is "oriented to formal, *public* messages and discourses (e.g. CEO speeches, mission statements, public relations campaigns…)" (Cheney et al 2004, p.81). From this perspective, discourses are viewed as "general and prevalent systems for the formation and articulation of ideas" (Alvesson & Kärreman 2000, p.1126). Whilst taking a macro level or 'Mega-Discourse' approach, it is important to also recognise that texts are produced and consumed in context and thus micro level issues remain relevant (Leitch & Palmer 2010).

Meisenbach and Feldner note that some researchers see rhetoric as a specific type of discourse, some see them as discrete concepts, and others use the terms interchangeably. This observation highlights the considerable "potential for slippage and confusion among some of the area's most basic terms" (2011, p.563), and emphasises the importance of striving for construct clarity in organisational research (Suddaby 2010). In the current research, rhetoric is conceived of as a form of discourse, characterised by the strategic use of symbols to create meaning, and to persuade. Specifically, organisational rhetoric is understood as "the strategic use of symbols by organizations to influence the thoughts, feelings, and behaviours of audiences important to the operation of the organization" (Hoffman & Ford 2010, p.7). Consistent with the work of Vatz (1973), the research focuses on how meaning is created through the use of rhetoric to *select* which elements of an event to emphasise (highlighting some whilst omitting others) and *name* those elements (creating their meaning) in particular ways for presentation to an audience. Using this approach will unveil how organisations engaging in the framing contest over agricultural biotechnology seek to construct the meaning of issues and events in particular ways, revealing more about their diverse and often conflicting interests and agendas. Analysis of the power dynamics that shape whether and how they are able to do so will shed light on the relative political agency of different organisational actors, bringing insight into the role of discursive opportunity in contesting important public issues such as global food security.

Organisational Rhetoric

Research in organisational rhetoric has been growing in influence over the last two decades. Two main streams of research have emerged in this domain. The first is concerned with *internal* organisational rhetoric and has focused on considering both the positive and negative consequences of persuasive communications in an organisational context (Sillince & Suddaby 2008). The second stream, of central relevance to the current research, focuses on *external* organisational rhetoric. Heath (2011) asserts that scholars working in the field of external organisational communication are typically concerned with issues of power, persuasion, ideology, argument and manipulation.

> "Our immediate interest is to extend that logic to external communication and the social construction of meaning that shapes the roles organizations play in society and the power resource relationships they need to sustain themselves and achieve their missions in the complex public arena where a multitude of voices can be a babel, in which public relations can be an unseen power"
>
> (Heath 2011, p.5)

In this complex public arena, organisational communications shape how their audiences interpret the issues and events unfolding around them. This in turn affects the ways in which those audiences choose to act (or not) accordingly. For example, the *concept* of GM food exists in our minds, but the GM food that appears in front of the consumer in the shops or on the table is an *object*, made sensible, given meaning, by the *concept* GM food. As the concept is applied to the object, it changes the way that object is perceived and treated (Phillips & Hardy 1997). The way the concept is discursively (and rhetorically) constructed, therefore, has direct implications for real world outcomes such as whether the consumer decides to buy and consume genetically modified food. So organisational communication, and particularly persuasive rhetoric, is influential. This is an important consideration when posing the question of whether and how organisational rhetoric can help to make society a better place.

Boyd and Waymer (2011) contend that in order for organisational rhetoric to have a positive impact on society it must be problematised. Taking a critical approach, they argue, will allow the hidden meanings and assumptions implicit in organisational rhetoric to be identified and challenged. The current research seeks to do just that, exploring the role external organisational rhetoric plays in influencing public discourse and therefore in shaping the way we respond to important issues such as global food security. The apparent consensus around such issues can conceal multiple conflicting perspectives within. Exploring these hidden meanings and assumptions through analysis of organisational rhetoric therefore represents a step towards challenging the misdemeanours of irresponsible organisational communications and securing a more positive role for organisational rhetoric in society.

Ihlen (2011) argues for a greater appreciation of the potential value of using rhetorical theory to analyse organisational rhetoric. Drawing on Bitzer's (1968) notion of the rhetorical situation, he examines the case of the Norwegian oil industry's response to the issue of climate change following the Brundtland Report (WCED 1987). Three specific rhetorical strategies were identified; i) tapping into popular sustainable

development discourse, ii) arguing that there were no realistic alternatives to oil, and iii) making a strong economic argument for increasing oil production. Ihlen (2011) concludes that in-depth critical approaches to the study of organisational rhetoric can improve understandings of the symbolic activity of organisational communication and its impact on society, acknowledging that this has the potential to be both constructive and destructive. The study particularly emphasises how research in this domain has often only engaged with rhetorical theory on a relatively shallow level. Indeed, rhetorical theory has much to offer in the way of analytical tools which can facilitate more in-depth analysis which delves beneath the surface to explore the implicit meanings and assumptions behind organisational rhetoric. Acknowledging this potential, the current research brings insights from rhetorical theory together with CDA to enhance the analysis and provide more nuanced insights into the role of organisational rhetoric in shaping public discourse.

Palenchar (2011) offers some thoughts on the challenges facing scholarship in this domain, highlighting many important questions still to be addressed by researchers concerned with understanding the role of external organisational rhetoric in the organisation-society relationship. Of the four research priorities identified as particularly worthy of further attention, two are of direct relevance to the current research. The first is to move away from focusing on a single rhetor, instead addressing the complexities of constantly evolving cultural, social, and political dialogue. Indeed, given that public issue framing contests invariably take place in multi-organisational settings, the research will acknowledge and unpack some of these complexities, paying particular attention to the dynamic nature of interaction between organisations in the public sphere. The implications of this multi-organisational setting for the research will be unpacked further in the following chapters. Secondly, Palenchar advocates critical scholarship which "questions the assumption that organizations act as fair-minded rhetors but does not allow frustration to disown rhetoric as being beyond remediation" (Palenchar 2011, p.573). Acknowledging the value of such an endeavour, the current research seeks to engage in meaningful critical scholarship whilst maintaining a sense of optimism about the potential for organisational rhetoric to have a positive impact on society (Boyd & Waymer 2011).

Corporate Discourse

Research into how organisations contribute to and shape public discourse does not fall neatly within one field or stream of research. Rather, it stems from critical offshoots of various disciplines such as Public Relations (PR), Corporate Communication, Corporate Social Responsibility (CSR) and Sociology, and is bound together by its critical approach, focus on language, and commitment to unmasking distortions in public organisational communication (Boyd & Waymer 2011). The study of organisational discourse and rhetoric is of vital importance given the power and influence of organisations operating in the world today (Hoffman & Ford 2010). Corporations, specifically, have gained such power that they can essentially tell people who they are, how to think, and what to value (Deetz 1992). Within the study of discourse, power can be conceived of in terms of "preferential *access* to, and *control* over, public discourse by social groups or organizations" (Van Dijk 2011, p.3). Given that many corporations, particularly multinationals, seem to embody this definition of power, the importance of research unmasking the workings of corporate discourse cannot be understated.

PR & Power

The concept of issues management arose in the early eighties within the field of PR, aimed at improving the efficiency of PR practitioners, particularly in keeping with the increasing importance of CSR (Heath & Cousino 1990). Barney and Black (1994) sought to shed light on the ethical dilemma facing PR practitioners who must satisfy the needs of their clients but who also arguably have an obligation of responsible communication to society. The authors contend that we live in an 'adversarial society', characterised by conflicting information presented by adversaries who must make the most persuasive case for their argument. This system is based on the assumption that public debate of social issues allows for collective judgements to be made, hopefully leading to more beneficial and socially just outcomes for society. They liken public relations professionals to lawyers, arguing that they "are advocates for their clients - with an overriding obligation to the interests of that client in an adversary society" (p.239). It is assumed that in an adversarial society, other parties will generate counterbalancing messages which allow the public to engage in a 'search for truth' as they weigh the arguments up against each other. This supposedly justifies the dissemination of 'selective truth' by public relations professionals, relieving them from the obligation to

tell the 'objective truth', but stops short of justifying the use of 'deceit' or 'blatant lies' (Barney & Black 1994; Deaver 1990). The authors acknowledge the difficulties of a scenario in which there is no assurance of a counterbalancing argument being made. However, there is scant consideration of the power relations at play between adversaries, and how this might affect which voices get heard and which are stifled.

Kuhn (1997) drew upon critical theory in order to extend the organisational literature on issues management by taking a rhetorical approach to the study of PR discourse. He argued that large organisations play an important role in shaping public life, imposing themselves on society through conscious and concerted efforts to influence public opinion regarding political, economic and social issues according to their own interests.

> "Attempts by organizations to influence their environments are inevitably rhetorical acts: symbolic processes which aim to define issues and form opinions in the minds of interested audiences (stakeholders) to bring positive outcomes to the organization"
>
> (Kuhn 1997, p.188)

In keeping with this rhetorical approach to the study of PR, there is a clear need for research which takes a critical perspective and recognises that due to a multitude of factors, including power, race, and gender, the adversarial system described by Barney and Black (1994) "only presents the illusion of equal access to whatever counts as a 'public sphere' today" (Boyd & Waymer 2011, p.479).

Research which is more sensitive to the power dynamics at play in struggles over public discourse has emerged in recent years. Much of this literature focuses on inter-organisational struggles for legitimacy (Vaara & Tienari 2008; Vaara & Tienari 2011), and how texts are used as weapons within these struggles (Hardy & Phillips 2004). Barros (2014), for example, examines the discursive struggle playing out between Brazil's state-owned oil company Petrobras and the local media. Using critical discourse analysis to explore Petrobras' corporate blog, Barros reveals how the company deploys discursive strategies designed to challenge the legitimacy of the media and construct its own credibility. The blog facilitated a "meta-discursive moralization strategy of truth and manipulation based on a discourse of e-democracy", allowing Petrobras to challenge the dominant discourse in which the company's legitimacy was constantly under question, as perpetuated by the media (2014, p.1224).

The study highlights the changing dynamics of power in PR and public discourse as new forms of social media allow for the development and deployment of innovate communications strategies. Such emerging research which is sensitive to the role of power in struggles over public discourse is encouraging, and the current research seeks to contribute to further development in this domain. The potential impact of such research is clear given that the legitimacy gained or lost through these struggles has real world implications. For example, factors such as the flow of resources to and from an organisation may be affected as changes in the perceived legitimacy or credibility of an organisation influence whether and how consumers, investors and governments choose to support it. This is a matter of acute significance when considering discursive struggles around public issues like food security, where the way resources are mobilised has a direct impact on the livelihoods of vulnerable people.

CSR & Corporate Reporting

Questions of power and discursive struggle in public discourse have also found their way into the CSR literature. On the one hand, much research in the field of CSR has maintained a Business and Management focus, centring, for example, on shareholder value theory, the relationship between corporate social performance and corporate financial performance, issues of corporate citizenship, and stakeholder theory (Mele 2008; May & Roper 2014). However, critical theory has also had a strong influence on the discipline (Kuhn & Deetz 2008), including some research into corporate communications and corporate engagement with public issues. The emphasis in this research stream is on corporate reporting, addressing the question of how discourse is shaped and rhetoric is put to work as firms engage with social and environmental issues (Boiral 2013; Castelló & Lozano 2011; Livesey 2002; Livesey & Kearins 2002; Milne et al 2006; Spence 2007). Boiral, for example, argues that sustainability reports can be likened to 'simulacrum' or "artificial representations of reality as conveyed by the signs and images employed to control social representations" (2013, p.1037). From this perspective, corporations are seen to manipulate information, over-emphasising their positive impacts and presenting an idealised representation of themselves so that the reality of their negative impacts is hidden behind the smokescreen of the simulacrum.

Livesey uses discourse analysis to interpret a corporate report produced by Shell, identifying a "socio-political discursive struggle over [the] environment and social justice" (2002, p.314). The research explores Shell's engagement with the notion of sustainability, revealing how the firm adopted a rhetorical strategy which enabled it to effectively respond to controversy over social justice and environmental issues. 'Sustainability' is interpreted as a space of dissension where a middle ground is established between competing economic and environmental discourses. By committing to engaging with the sustainability dialogue, Shell is at once able to respond to criticism and accommodate a low level of change, influencing the wider discursive order and resisting higher order change. The study provides insights into how power relations can influence the formation of a dominant discourse, consistent with Foucauldian theory relating to the discursive dynamics of knowledge and power. For example, Shell is able to produce and reproduce its legitimacy, even in the face of widespread public challenge, by referring to 'expert' sources of authority and forming strategic discursive alliances.

Castelló and Lozano (2011) analysed CEO statements appearing in the sustainability reports of 31 corporations over a three-year period in order to gain insight into how firms seek legitimacy through corporate discourse. They identified three kinds of CSR rhetoric at play in the statements, namely strategic, institutional and dialectic. Whilst CSR 'laggards' are still primarily using strategic and institutional rhetoric, CSR 'leaders' are beginning to adopt new forms of dialectic rhetoric (Castelló & Lozano 2011, p.24). The authors argue that the joint communicative efforts characteristic of this new dialectic CSR rhetoric have the capacity to enhance the quality of discursive deliberations among corporations and their stakeholders. This then has the potential to improve the perceived moral legitimacy of the firm, based on the assumption that communicative activity affirms the notion that the suitability of certain actions is decided collectively, and corporations are perceived as valuing the beliefs of their stakeholders.

A stream of research within the CSR literature has considered the phenomenon of 'greenwashing'. The concept of greenwashing "refers to the practice of making unsubstantiated or misleading claims about a firm's environmental performance" (Berrone et al 2017, p.363). This literature has dealt with questions such as how consumers respond to greenwashing (Chen & Chang 2013; De Jong et al 2018; Nyilasy et al 2014), whether greenwashing has a positive effect on organisational legitimacy

(Berrone et al 2017), what the drivers of greenwashing are (Delmas & Burbano 2011; Testa et al 2018), and how the rise of social media has affected greenwashing (Lyon & Montgomery 2013). Accusations of greenwashing have been rife in recent years, leading some scholars to dismiss corporate environmental-speak, and CSR-speak more generally, as "mere rhetoric" (Conrad 2011, p.x). However, in reviewing the literature on greenwashing, and CSR-washing more broadly, Pope and Wæraas (2016) find that successful CSR-washing is in fact rare. The authors claim that such cynicism now surrounds CSR activity that if tomorrow "Microsoft launched a national campaign to increase blood donations, by the end of the week, the term redwashing would have appeared" (p.186). They argue that in this climate of cynicism, successful CSR-washing is contingent on such an array of factors that insincere CSR initiatives are rarely an effective means of gaining legitimacy.

This body of literature provides important insights for understanding corporate discourse, particularly around social and environmental issues. It serves to demonstrate how questions of legitimacy punctuate the conversation around CSR, power and public discourse. Legitimacy is an important driver of CSR initiatives, but is also threatened by exaggerated or unsubstantiated claims. Looking beyond the surface of corporate discourse, it is not only clear that corporate communications are often misleading and based on highly contested claims, but also that corporate actors are increasingly aware of this fact, and as such are adopting more nuanced communication strategies. In light of these observations, and given the extensive power and reach of many corporations, it is important to keep pace with developments in corporate communications strategies. Whilst much of the research in this area focuses on the corporate rhetor, privileging one perspective, the current research takes a more dialogical approach (Carragee & Roefs 2004; Dahan & Gittens 2010). This dialogical approach does not privilege the voice of one organisational actor, nor does it assume corporate dominance in discursive struggles over public issues. Instead, the research offers a critical discursive perspective on how organisations struggle to influence public discourse in a complex multi-organisational setting where different interests and agendas are at play.

Beyond Business: Discourse & Power in a Multi-Organisational Context

Scholars of organisational communications, influenced by the increasing prevalence of interpretive and critical approaches in the study of organisations more generally, have diversified away from research with a strict focus on private, for-profit organisations to consider alternative organisational forms including community groups and social justice organisations (Mumby & Stohl 1996; Ganesh & Stohl 2014). Waymer (2009) has also drawn attention to the specific need for research to investigate government communications. He claims that "all organizational discourse (mis)represents various publics' interests it is supposed to represent", but that this is a particularly potent paradox for governments who, unlike corporations and non-governmental organisations (NGO), are expected to serve all people's interests (Waymer 2009, p.24). Rather than reflecting managerial agendas and corporate interests, this body of research is concerned with how communication creates and shapes organisational reality, and with examining how communication furthers the interests of some organisations whilst other voices are marginalised. Rising public interest in issues of social justice is evident in prominent media campaigns and active social movements around matters such as modern slavery, climate change, and trade justice. This interest has fostered a "new generation of research that positions globalization as a background against which organizing efforts discursively identify and construct social problems and give rise to new modes of participation" (Ganesh & Stohl 2014, p.744). As a range of organisational actors contribute to the identification and construction of social issues in the public domain, it is important to raise questions about whose interests those constructions are designed to represent.

In their seminal book *The External Control of Organizations* (1978), Pfeffer and Salanick make a strong case for paying closer attention to the social context of organisations in order to come to a better understanding of why they behave in the ways that they do. Explaining that organisations are "embedded in networks of interdependencies and social relationships", they argue that "the need for external resources, including financial and physical resources as well as information, obtained from the environment" makes them somewhat dependent on the external sources providing these resources (Pfeffer & Salanick 2003, p.xii). The theory raises questions of power, in as much as different organisations will be enabled or constrained to different degrees by their relative resource dependence, and will also vary in their ability to manage or mitigate those constraints. It is important to maintain awareness of these

considerations when analysing discourse in a multi-organisational setting, acknowledging that their relative resource endowments and constraints will affect the ways in which different organisations are able to influence public discourse. However, such a traditional resource-based understanding of power can lead to the perception that some organisational actors are necessarily more powerful than others. This may lead to the assumption, for example, that corporations must be more influential than CSOs in influencing public discourse.

In contrast, the current research seeks to gain insight into the various modes and manifestations of power that bolster the political agency of different organisations. Taking a political agency perspective on discourse in a multi-organisational setting challenges the assumption that corporations' rich traditional power-base will necessarily lead to their dominance in discursive struggles. The attention to social context advocated by Pfeffer and Salanick (2003) is indeed important, but must not neglect to account for non-traditional forms of power. Taking a political agency perspective on discursive struggles over public issues involves extending our understanding of resource-based power to include discursive resources. Indeed, Phillips and Hardy argue that "discursive power may compensate for a lack of traditional power sources" (1997, p.182). This perspective offers a new angle on discursive struggles over public issues by highlighting how different modes and manifestations of power can open up and shape spaces of political possibility (Ranganathan 2014).

Issue Framing: The Theoretical Approach

The study of public discourse in Management and Organisation research has benefited from insights from the discipline of Sociology, and particularly from frame theory. The concept of framing is attributed to Erving Goffman whose seminal book *Frame Analysis* (1974) introduced the notion of frameworks, or schemata of interpretation, through which we understand the world around us. Such a framework renders otherwise meaningless occurrences meaningful by allowing its user to "locate, perceive, identify, and label a seemingly infinite number of concrete occurrences defined in its terms" (Goffman 1974, p.21). It provides the background understanding of the natural and social world needed to interpret phenomena and guide behaviour. Research utilising frame theory has pursued a variety of different pathways. Some framing research is

concerned with micro-level cognitive framing processes, conceiving of frames as "internal structures of the mind" (Kinder & Sanders 1990, p.74), and focusing on issues of cognition and decision-making. However, frame theory has also been applied to understand external meaning-making, and how frameworks of understanding are created, deployed and promoted by different actors and organisations. Research of this kind takes place at different levels, including the individual (micro level), organisational (meso level), and the multi-organisational/public sphere (macro level). The current research takes a macro level approach consistent with that of Dahan and Gittens, applying frame theory "in the context of public debates, where the emphasis is on the social (rather than psychological) construction of reality" (2010, p.228). This approach is appropriate for the purposes of the current study given that the discursive struggle over food security discourse takes place in the international public arena where a multitude of different organisational actors seek to make their claims heard.

Social Movement Framing

Some of frame theory's most notable developments have taken place at the hands of Gamson, Benford, Snow, and their colleagues in theory and research focused on collective action and social movements (Benford 1987; Benford & Hunt 1994; Benford & Snow 2000; Gamson 1992, 1995; Gamson & Lasch 1981; Snow 2008; Snow & Benford 1988). Within the study of social movements, the verb 'framing' is adopted to conceptualise the active meaning construction at work in the production of interpretive frames or 'collective action frames' which are developed with the intention of mobilising support for an issue or campaign. Snow and Benford identify three core framing tasks:

> *i)* *Diagnostic framing* – involves the identification of a problem as well as attribution of blame/responsibility.
> *ii)* *Prognostic framing* – is the process through which solutions, strategies, tactics and targets are identified.
> *iii)* *Motivational framing* – involves the elaboration of a rationale for action.
>
> (1988, p.200)

The theory acknowledges that among other things, phenomenological factors will affect the potency of proffered framings, particularly in terms of their 'empirical

credibility', 'experiential commensurability', and 'narrative fidelity' (Snow & Benford 1988, p.208).

A burgeoning literature applying frame theory to the analysis of social movements has emerged, examining issues as diverse as Islamic terrorist movements (Snow & Byrd 2007), nuclear disarmament movements (Benford 1993a, 1993b), environmental justice movements (Čapek 1993), homeless mobilization (Cress & Snow 2000), political framing in education (Davies 1999), religious pro-choice movements (Evans 1997), labour movements (Babb 1996; Cornfield & Fletcher 1998) and gay/lesbian movements (Jenness 1995). It has also helped to shed light on the dynamics of several aspects of social movements, including how meaning is constructed within them (Kane 1997), how frames resonate with a given culture (Kubal 1998), how frames are disputed within social movements (Krogman 1996), and the role of identity in social mobilisation (Hunt & Benford 1994; Polletta 1998).

In their comprehensive review of framing research in the social movements literature, Benford and Snow (2000) offer an overview and assessment of theoretical and empirical developments that have taken place over the years. They investigate how research has elaborated on the core features of collective action frames and the core processes of framing in action. Of particular interest are the strategic processes of frame alignment through which social movements pursue their interests, originally introduced by Snow et al (1986) and since refined and developed by other scholars. These processes include:

i) *Frame bridging* – linking frames which are ideologically compatible though structurally unconnected in order to garner further support.
ii) *Frame amplification* – embellishing, clarifying, or invigorating existing values or beliefs to ensure their continued resonance with cultural values.
iii) *Frame extension* – stretching the portrayal of the frame and its sponsor's interests to include issues that are of importance to potential supporters.
iv) *Frame transformation* – changing or developing old understandings or meanings and formulating new ones.

(Snow et al 1986)

Whilst originally identified in the social movements literature, these processes are also evident in the framing activities of private and political organisations (e.g. Shriver et al 2013; Waller & Conaway 2011). They offer value to the current study by helping to

conceptualise framing as an active process, laying the foundation for a dynamic perspective on public issue framing contests which is attentive to changes in framing strategies over time. Further insights from the social movements framing literature which are of central relevance to the current research, including those around contextual constraints and facilitators of framing activity, and the limitations of framing research to date, will be explored in the following chapter (Benford & Snow 2000; Snow et al 2014).

Though the greatest thrust of framing research has remained in the social movements literature, the theory's development in this domain has not precluded it from use elsewhere. Frame theory's suitability for the study of organisational discourse stems from its recognition of the pivotal role of language in the framing process. Many of the theory's core insights hold across disciplinary boundaries, and as a result, framing research has translated well to other fields which deal with the framing activity of organisations from different sectors. In particular, frame theory has great potential for shedding light on public discourse which invariably inhabits a multi-organisational setting. New considerations arise in this domain, where the purpose of the framing activity of different organisations is not necessarily just the collective action central to the social movements literature, but may extend to the promotion of products or services, influencing regulatory systems, garnering public support, or winning contested resources. High stakes are involved when it comes to discursive struggles over public issues such as global food security. Though outwardly unifying, such issues bring out the competing interests of different organisations, presenting a ripe context in which to explore how the diverse agendas of corporate, political, and civil society organisations are expressed through their framing activity.

Corporate Framing

Understanding the framing activities of corporations is of particular importance in today's globalised society where the power, reach, and regulatory influence of some multinationals outstrips that of sovereign nations. However, Waller and Conaway claim that although frame analysis offers a "highly productive approach to examining a wide array of discourses", it has been under-utilised in corporate research (2011, p.86). Noting an absence in the literature of any study providing an "extended analysis of a corporate rhetor's use of framing", they set out to do just that (Waller & Conaway 2011,

p.90). The authors used frame theory to investigate how Nike managed to defend its CSR reputation through the deployment of a counter-framing strategy in the wake of widespread public criticism due to the alleged use of sweatshop labour. They demonstrate how in spite of strong resistance from civil society groups, the corporation was able to reframe the debate over its labour practices and assume an even stronger CSR reputation than it had held before the controversy arose. The authors particularly emphasise the important role of the media in accelerating and intensifying the framing process around CSR issues. The study demonstrates that in spite of the challenge of conducting research in a context where both strong corporate framing and collective action framing are evident, this type of multi-organisational setting can facilitate important insights into the framing strategies of competing organisations, highlighting the power differentials at play between them.

Reinecke and Ansari (2016) use the foundational work of Goffman (1974) and Benford and Snow (2000) to examine how corporations construct and come to accept responsibility for 'wicked problems'. Wicked problems are defined as "large scale social challenges caught in causal webs of interlinking variables spanning national boundaries that complicate both their diagnosis and prognosis" (Reinecke & Ansari 2016, p.299). The authors argue that wicked problems present three challenges to the core tasks associated with issue framing. Firstly, their complexity means that it is hard to identify a specific cause. Secondly, it is difficult to identify a solution when there is little consensus regarding the cause. Thirdly, this lack of consensus can inhibit a collective response to the problem and make it difficult to target a particular perpetrator e.g. a corporation. They argue that private responsibility is socially constructed, proposing a framework of five frame-shifts through which responsibility for wicked problems can come to be attributed to corporations. The authors highlight a need for research which considers how activists construct political opportunities to attribute responsibility for wicked problems to companies. The current research speaks directly to this need, investigating how the relative power of different organisational actors affects their capacity to construct and engage with discursive opportunities to influence public food security discourse and affect political change.

Investigating the corporate quest for legitimacy through framing strategies, Ken (2014) focuses on two corporate alliances ostensibly established to tackle childhood obesity. She explores how they engage in the core framing task of diagnosis to identify the problem as 'childhood obesity', rather than, for example, corporate influence over

children's diets. In doing so, they pave the way for a prognosis which involves partnership and collaboration, staking their own claim of membership in this anti-obesity community. In this way, she argues, they discursively align themselves with health educators, researchers, cafeteria workers, and other members of the community, effectively obscuring their profit motive as they seemingly wage war on a shared problem. Each member of this community has a role as a producer, distributor, or consumer, and so consumers, by extension, play their role in tacking childhood obesity by purchasing 'healthy' products. In conclusion, Ken argues that "some corporations co-opt the rhetorical tactics typically associated with social movement organizations to frame their profit-maximizing practices as the solution to the problem", pointing to their "desperation" to maintain legitimacy in an environment where community groups are increasingly seeking to limit corporate involvement (2014 p.130). This raises interesting questions for the study of discursive struggles over public issues, suggesting that if corporations are able to align themselves with the right actors or organisations then they may be able to convincingly position themselves as collaborators in tackling a shared problem. This may be an effective counter-framing technique in response to social movement frames, which often implicate corporations in their diagnoses of a public issue.

Dahan and Gittens (2010) use frame theory in the context of public debates to investigate how 'ethical public issues' are socially constructed by organisational actors (including firms, NGOs, the media, and governments) trying to further their own interests. An ethical public issue is characterised by three key features:

i) *Expectational gap* – between how those affected by an organization's activities expect it to perform and how it actually performs.

ii) *Public debate* – as to the nature of the problem, its cause, and how best to address it.

iii) *Uncertainty* – regarding which of the advocated options best serves the general interest.

(2010, p.229)

The study deals with the issue of slavery in the chocolate industry as a prime example of a public debate displaying these features. Using discourse analysis, Dahan and Gittens deconstruct the ethical reasoning and rhetoric adopted by various organisational actors and identify different issue frames. Analysis of these frames

reveals how organisations appeal to moral and ethical arguments in order to support very different sets of activities and responses. The organisations are characterised as 'strategizing' actors in that they "attempt to impose their own definition and preferred solution to the issue" in what can be described as an "issue framing contest" (Dahan & Gittens 2010, p.227). The study's strength lies in the insight it provides into a public issue framing contest taking place in a multi-organisational setting characterised by the competing interests and agendas of different organisations. The study raises questions about the use of moral or values-based claims in such a context, where the outcomes of the discursive struggle have a direct impact upon the way public issues are responded to, and consequently whose interests win out. For example, does the use of moral claims increase (or decrease) the resonance of all organisational actors' frames in the same way, or are some organisations better positioned to benefit from the use of moral claims? The current research seeks to provide insight into such questions by emulating the sensitivity to the multi-organisational context demonstrated by Dahan and Gittens in combination with a deeper level of frame analysis which deconstructs issue frames in their component elements and explores their implicit meanings and assumptions (Creed et al 2002a).

Media Framing, or Framing in the Media?

Within framing research, the media can be conceived of as an actor engaging in framing activity, or as a space in which framing activity takes place (Gamson & Stuart 1992). Research relating to the role of the media as an actor involved in meaning-making has resulted in thriving literatures on mass media effects (Scheufele 1999), media discourse (Gamson & Modigliani 1989; Fairclough 1995), and media framing (Vliegenthart & Zoonen 2011). In the domain of Management and Organisation, some research has emphasised how the media can act as "information gatekeepers", and manipulate or emotionalise discourse, influencing public perception of corporate activities (Palazzo & Scherer 2006, p.83). Examples of the media as an actor engaging in meaning-making are numerous. To name just a couple, Livesey's (2001) analysis of Shell's communications around the Brent Spar disaster conceived of the media as a stakeholder which drew on alternative discourses to present a different interpretation of events to that of Shell. Nijkrake et al (2015) analysed media coverage during a corporate crisis and found that the media used more and different frames than the

corporation in crisis, indicating that the media plays an active role in reframing original corporate communications such as press releases.

Nonetheless, the media undeniably constitutes a space in which different actors and organisations seek to make their voice heard, and is conceived of in this way in a broad range of research (Boin et al 2009; Gamson & Stuart 1992; Vliegenthart & Roggerband 2007). So, is the media best conceived of as a framing agent or a framing arena? Framing research reveals that the two are not mutually exclusive; the media is of course both an active participant in the co-construction of meaning and a space in which meaning is contested by different organisations. For example, in their research on framing immigration and integration in the Netherlands, Vliegenthart and Roggerband (2007) describe the media as an arena in which framing takes place, but also identify journalists as one of several types of actor engaging in framing activity within that space. This duality is further emphasised by Boin and colleagues.

> "The media are not just a backdrop against which crisis actors operate, they constitute a prime arena in which incumbents and critics, status-quo players and change advocates have to perform to obtain or preserve political clout. Crisis actors need to convince news-makers to pay attention to their particular crisis frame, and, if possible, support it"
>
> (Boin et al 2009, p.95)

Whilst acknowledging the dual nature of its role, for the purposes of this research the media is primarily conceived of as an arena in which framing activity takes place. In so far as the media (in)accurately reproduces the framings of different organisations, it can help to gauge the relative success of frame sponsors in promoting their preferred understanding of an issue or event. Furthermore, though the media does co-construct meaning, influence framing activity, and at times reframe organisational communications, the interests under scrutiny for the purposes of this research are primarily those of the frames' main sponsors. Nonetheless, the research will remain attuned to the role of the media in selecting and shaping the meaning it reproduces.

Framing Contests & Discursive Struggles

Frame theory has evolved much at the hands of scholars researching social movements. The theory's adaptation for the study of social movements has begun to

highlight the power differentials at play in a multi-organisational setting, where diagnoses, prognoses and logics are debated and refuted by actors with a wide variety of interests and agendas (Dahan & Gittens 2010). In this context, the framing process is "contentious in the sense that it involves the generation of interpretive frames that not only differ from existing ones but that may also challenge them" (Benford & Snow 2000, p.164). Several concepts have been developed in order to capture this phenomenon, including 'adversarial framing' (Gamson 1995), 'counter-framing' (Benford & Hunt 1994), and 'framing contests' (Ryan 1991).

Gamson (1992) claims that collective action frames have three components: injustice, agency, and identity. He highlights the importance of the adversarial nature of the identity component in uniting members of a movement as a 'we' in opposition to some 'they' who typically have different interests and values. "Without an adversarial component, the potential target of collective action is likely to remain an abstraction – hunger, disease, poverty, or war, for example" (Gamson 1995, p.90). A logical progression of Gamson's point is that those framing an issue in opposition to an adversary will do so in order to counteract that adversary's portrayal of the issue at hand. This is where Benford and Hunt's (1994) concepts of 'counter-framing' and 'reframing' come in, helping to conceptualise the discursive struggle that takes place between organisations seeking to discredit, neutralise, and rebut each other's claims, and to sustain, repair, or repackage their own (Benford 1997).

The concept of framing contests was introduced by Ryan (1991) who analysed the role of the media in the discursive struggles taking place between social movements and their opponents in the public arena. Framing contests can be understood as symbolic contests undertaken with an arsenal of symbolic devices such as metaphors and catch phrases. These devices interactively support an 'interpretive package' through which a frame's audience (whether it be a particular targeted group or the public at large) is able to make sense of an ongoing stream of events as they unfold in relation to a particular issue (Gamson & Stuart 1992). Each package has a core frame which defines the issue and contains "a number of different condensing symbols that suggest the core frame, making it possible to display the package as a whole with a deft metaphor, catch phrase, or other device" (Gamson & Stuart 1992, p.60). These condensing symbols are known as 'signature elements', and point to the core frame in a shorthand fashion. For example, whist undertaking research on the political culture of social welfare policy, Gamson and Lasch identified "workfare not welfare" as a catchphrase that acted as a

signature element pointing towards the core frame identifying 'welfare freeloaders' as a problem for the national economy (1981, p.23). As the symbolic devices which make up a package are repeatedly put to work in the public domain, they display its characteristic elements such that the package as a whole, and the frame at its core, become familiar to us. The success of competing framing attempts can be gauged by tracking their relative prominence in the public arena, such as through media outlets (Gamson & Stuart 1992).

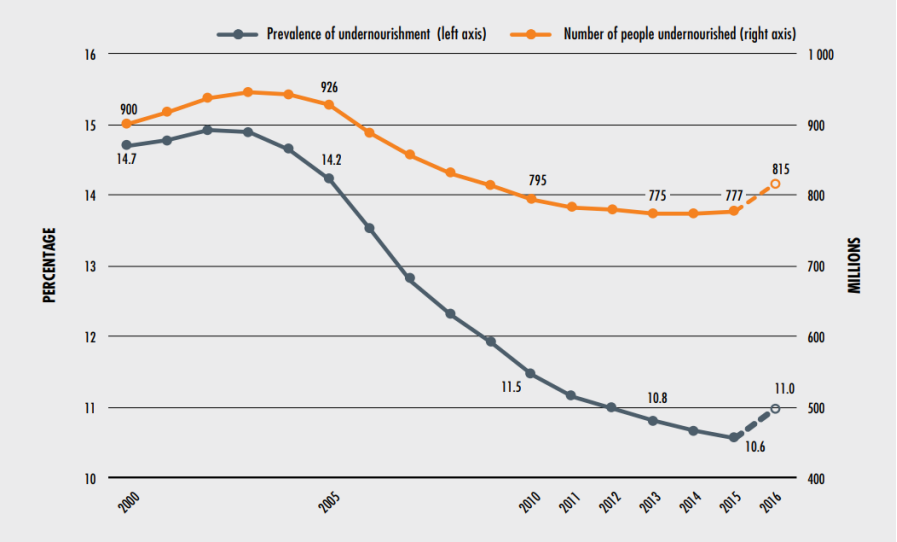
Studies have considered a variety of framing contests occurring in relation to all sorts of issues, including obesity and 'the fat body' (Jenkin et al 2011; Kwan 2009), slavery in the chocolate industry (Dahan & Gittens 2010), crises, disasters and political scandals (Boin et al 2009), nuclear war and Soviet-American relations (Gamson & Stuart 1992), and neo-liberalism (Ayres 2004) to name just a few. The concept of framing contests has also been actively engaged with by institutional theorists concerned with the dynamics at play between organisations and groups of organisations which make up 'institutional fields' (DiMaggio & Powell 1983). In this context it has helped to shed light on the struggles which often take place as organisations seek to impose their preferred meaning on a given situation, particularly during periods of change and upheaval (Cornelissen & Werner 2014; Meyer & Höllerer 2010).

Continued interest in framing contests by scholars from a range of disciplines attests to the concept's enduring value as an approach to understanding discursive struggles in a variety of contexts. One of the reasons for this is the undeniable impact of the outcomes of framing contests on public policy, and therefore on real lives. Indeed, Waller and Conway argue that there is no doubt that "if a frame achieves sufficient prominence, it exerts a tangible, demonstrable effect on the discussion and resolution of a public issue" (2011, p.89). Consequently, whilst research utilising frame theory has significant potential to raise and answer important questions regarding how discursive struggles around public issues play out, this important endeavour cannot be undertaken without due consideration of power. Public issue framing contests are concerned with political change, and therefore invariably raise questions of political agency. Taking a political agency view of framing contests which is sensitive to the power dynamics at play between organisations with different interests can help provide a more nuanced understanding of how they exert their influence on the discourse which shapes how public issues are responded to.

Food Security: The Focal Issue

The Food and Agricultural Organisation of the United Nations (FAO) defines food security as "a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (2015). In spite of dramatic population growth over the last half century, a significant increase in global food production meant that until recently the proportion of hungry people in the world had actually been steadily decreasing (Godfray et al 2010). However, due in part to climate shocks, increased conflict, and economic slowdowns, the estimated number of undernourished people in the world increased from 777 million in 2015 to 815 million in 2016, and 821 million in 2017 (FAO et al 2017; FAO 2018).

Figure 1. Global Trends in Undernourishment



(FAO et al 2017)

Continued population growth, higher consumption levels, inequality, ever increasing demand for processed food and the challenges of our changing climate are putting extreme stress on world food systems. Consequently, food security now features prominently on the international social impact agenda. Akin to climate change, which has recently been framed by a plurality of actors as a national security issue, food is now viewed as a threat that ostensibly poses a public risk. At the Paris climate summit, the impact of continued population growth and global warming on food production was recognised as a threat to global stability and security. The Sustainable Development Goals, elaborated in 2016, commit to ending hunger and achieving food

security and improved nutrition by 2030. However, the UN acknowledges that "at the current rate of progress, the world will not meet the zero hunger target by 2030" (UN 2017). Indeed, some research has indicated that the targets set by such global initiatives encourage short-term solutions and lead to the marginalisation of issues such as inequality of access, nutrition quality, and other socio-political factors (Fukuda-Parr & Orr 2014).

Widespread recognition of the severity of food security issues has culminated in the establishment of the Committee on World Food Security (CFS), an intergovernmental international body that oversees the implementation of food security and nutrition policies. But while the international response advocated by organisations like CFS portrays a unified vision of effective and socially just solutions, a closer look at the discourse of food security suggests a wide range of different attitudes, perspectives and approaches. This diversity of perspectives means that even the primary task of defining food security is a challenge. Lang and Barling argue that lack of a clear definition of food security and the complexity of competing discourses have led to fractured and contested policy responses based on divergent 'food philosophies' (2012, p.321). Corporations have played a pivotal role in shaping public understandings of food security, promoting the disputed claim that focusing on increasing food production offers the best solution. However, sceptics argue that commercial interests undoubtedly take precedence over the long-term public good (Godfray et al 2010).

Agricultural Biotechnology

One of the ways in which corporations have sought to increase agricultural production is through the use of biotechnology. The Convention on Biological Diversity (CBD) defines biotechnology as "any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use" (CBD 2018). Agricultural biotechnology is often used to create genetically modified organisms (GMO), which involves the introduction of one or more genes from one organism into another using recombinant DNA technology (FAO 2011). The use of agricultural biotechnology has been a contentious topic ever since the commercialisation of the first GM crop more than twenty years ago. Its proponents make a variety of claims, including that use of the technology has the potential to increase crop yields, protect against pests and environmental stressors, improve the

quality and nutritional value of food, and contribute to environmental sustainability. However, many of these claims are widely contested.

Critics of agricultural biotechnology raise objections on several grounds including negative impacts on health and the natural environment, contamination risks, disempowerment of farmers, and increasing corporate control of world food systems. It is often argued that the continuous strengthening of corporate rights over the seed and plant varieties they develop has translated into the diminishment of farmers' rights over the crops they cultivate. In particular, the traditional practice of seed saving has been the focus of much attention, threatened as it is by international property protection laws (Mascarenhas & Busch 2006). Critics of agricultural biotechnology also dispute the claim that GM crops are associated with a decline in the use of pesticides and herbicides, or that they contribute in any way to achieving environmental sustainability. The technology's detractors often argue that scaling up smallholder farming and using agroecological methods offers a better solution to the problem of food insecurity, dismissing agri-biotech as power-grabbing and profiteering on the part of multinational agribusinesses. Furthermore, some voices speaking out against agricultural biotechnology dispute the claim that food insecurity is even a question of insufficient production, highlighting other issues that need to be tackled in order to ensure global food security, such as inequality, infrastructure, over-consumption, and food waste.

Food Security Discourse

Within the sphere of research taking a discourse analytical approach to exploring how organisations engage with public issues, there is a small body of work from a variety of disciplines relating to food security. Jarosz (2011) problematises the concept of food security, performing a critical discourse analysis of international food security policy documents. She examines how the scale and definition of food security have changed over time, exploring how scale, in relation to food production and consumption, is discursively constructed through food security discourse. Jarosz claims that the construction of scale shapes the political economy of hunger, arguing that policy interventions resulting from the changing definition of food security have served neo-liberal ideology and "deepened poor countries' dependence upon staple food grain imports of wheat, corn and rice from wealthier countries, exacerbating food insecurity

rather than alleviating it" (2011, p.118). Whilst in the past food security discourse focused on securing national and regional grain stocks, she argues, the emphasis has now shifted to individual purchasing power. This has resulted in the increasing commodification of food and the shifting of responsibility from global and national levels to household and individual levels, widening the gap between the powerful and the vulnerable. In a later development of this argument, Jarosz (2014) compares food security and food sovereignty discourses, analysing how scale is constructed within them and how they are each "tied to distinctive political and economic histories, ecologies, and identities at the national and local levels" (p.168). Jarosz notes that whilst some promising convergence has taken place between the two constantly evolving discourses, genetic modification remains an important point of opposition between them. She emphasises that distinct definitions should be resisted, and that food security and food sovereignty should instead be understood as relational concepts.

Lang and Barling (2012) track the UN and FAO's post-World War 2 food security policy and draw similar conclusions from their analysis of the evolution of discourse. They identify two approaches, the 'old' discourse focused on increasing food production, and the 'emerging' discourse advocating a more social and ecological approach which recognises the need to address a complex array of issues beyond just production. Raising production is identified as the dominant discourse, again fuelled by neo-liberal economic arguments and advocated by intergovernmental bodies and powerful corporate coalitions. Before the term 'food security' came into popular use, the debate surrounding access to adequate food was characterised by questions concerning commerce, the role of the state, and the plight of the common people. However, Lang and Barling note that the advent of "the language of food security to some extent neutralised social class and inequality as framing issues. Food security put food into the same policy language as the military and 'national interests', yet it has inevitably always been a moral discourse" (2012, p.321). This is reflected in the fact that the right to food has long been enshrined in the UDHR. Indeed, whilst technical and market-based approaches to food security issues have dominated, these have been heartily contested by organisations making justice and rights-based claims. This raises questions about the potential opportunities presented by the moral nature of food security discourse. Further research is needed to shed light on how such opportunities can be most effectively harnessed by organisations seeking to challenge the status quo of industrial agriculture.

Fontoura et al (2016) map key similarities and differences in food security discourse as deployed by a variety of private, political, and civil society actors at the Rio+20 conference. Exploring the different political and economic interests of these actors, the authors provide new insights into how hegemony is organised within the transnational agri-food system, emphasising the significant role played by civil society actors in resisting or reinforcing this hegemony. The study highlights the importance of the structure of power relations in which the discursive struggle over food security plays out, identifying corporations as the most powerful actors. Furthermore, it identifies a high degree of overlap between the voices of corporate and governmental actors, indicating the active involvement of corporations in policy making, regulatory capture, and the increasingly powerful role of corporate actors in the world food systems domain (Fontoura et al 2016). Some civil society actors are identified as advocates of corporate involvement in addressing global challenges such as food insecurity through such initiatives as public private partnerships. Conversely, other CSOs, particularly grassroots movements, highlight increasing corporate control of world food systems as part of the problem of food insecurity, struggling towards a hegemonic shift that would see a stronger focus on food sovereignty and the prioritisation of people's rights over corporate interests. Focusing on contested food security discourse in a multi-organisational setting as it does, this study provides a strong foundation for research investigating how power is discursively structured and organised around public issues. The authors acknowledge that studies carried out on a broader set of documents could provide further insight into the maintenance and resistance of hegemony in world food systems (Fontoura et al 2016). It is in this spirit that the current research considers a wide range of organisational documents, seeking further insight into the ways in which organisations from different sectors construct the notions of food security and agricultural biotechnology as they seek to influence public food security discourse.

The body of research on food security discourse includes a relatively narrow stream considering the conversation around agricultural biotechnology. This research crosses the boundaries of a variety of disciplines including Agrarian Studies, Development Studies, Human Geography, Environment, Sustainability, and Ethics in Science and Engineering (Gerasimova 2016; Hendrickson et al 2014; Mascarenhas & Busch 2006). Of particular note is a recent study by Lamphere and East (2017) who focus on multinational agribusiness Monsanto, exploring the ways in which the corporation has sought to promote and legitimise the proliferation of agricultural biotechnology through the deployment of specific discursive resources. These included concealing

details about certain actors and actions, aligning itself with trends in global sustainability discourse, and reshaping narratives for the promotion of biotechnology. The authors contend that legitimation is an ongoing process and that the commitments they entail shape both discursive and material action. These legitimation activities demonstrate "how corporate actors continuously work to construct positive self-images, which promote the continuity of their actions and, therefore, their ability to accumulate profit" (Lamphere & East 2017, p.85). The analysis provides a comprehensive account of the discursive resources employed by Monsanto as it sought to build and shape its own legitimacy, and in doing so provides a solid foundation from which to explore how corporate power is exercised and maintained (Lamphere & East 2017). However, as the authors acknowledge, the study focuses on one powerful industry actor, and further research is needed to understand how corporate frames work in relation to opposition frames. Addressing this question, the current research considers the issue framing contest over global food security that takes place between that same powerful industry actor, Monsanto, and some of its framing allies and opponents. In doing so, it provides a more dynamic account of the contest as a whole rather than privileging one side of the framing contest over another.

Some research on agri-biotech and food security discourse has also emerged in the domain of Sociology, falling predominantly within the social movements literature. Schurman and Munro (2009) analyse differences in the efficacy of anti-biotech movements in the US and the UK, examining the economic opportunities for effective activism offered by global commodity chains. The authors identify the discursive strategy of linking discourse to popular food-safety fears and concerns about the environmental impact of industrial agriculture as a key factor in the success of the UK anti-biotech movement. In an earlier study exploring the process of grievance construction in the anti-biotech movement, Schurman and Munro (2006) traced the origins of the resistance right back to the emergence of biotechnology in the US during the 1970s. They found that many social movements "arise because small groups of activists work individually and collectively to create new frameworks of understanding that render particular aspects of the *status quo* problematic" (p.32). These alternative frameworks serve to make sense of the issue at hand, both for their creators and for those around them. In so much as these frameworks define the nature (political, economic, and/or social) of the issue in particular ways (e.g. as wrong/immoral), they are engaging in grievance construction. The way a grievance is constructed through such issue definition (or to speak in framing terms *diagnosis*) has direct implications

for the prognosis offered, ultimately shaping how the issue is responded to. Whilst this study provides interesting preliminary insights, it suggests that more work is needed to arrive at a fuller understanding of how such issue definition takes place at the elemental level. Indeed, a more nuanced application of frame theory has potential to provide a deeper level of analysis, enabling an issue or grievance to be deconstructed into its component elements (Creed at el 2002a). This could help to explain, for example, how a sense of (im)morality is constructed through the deployment of a specific set of symbolic discursive resources. The current research takes such an approach, using signature matrices to identify the component elements of agri-biotech issue frames, looking beneath the surface of organisational discourse to reveal how organisations with distinct interests and agendas construct the notion of food security in particular ways.

Framing Food Security & Agricultural Biotechnology

In perhaps the most compelling study of the framing of food security, Mooney and Hunt (2009) analyse the communications of a range of organisations from different sectors. The authors argue that food security serves as an 'elaborate master frame' which different actors can tap into in accordance with their own agendas (Snow & Benford 1992). Food security can be identified as a 'consensus frame' in that on a surface level it has broad appeal, and "a resonance that doesn't immediately engender oppositional claims" (Mooney & Hunt 2009, p.470). However, though by their very nature consensus frames invite a kind of non-reflexive consent (Gamson 1995), beneath their outward appearance there is often in fact considerable dissensus. The authors explain how the food security consensus frame is elaborated in different ways by different actors, who punctuate the frame with certain claims and beliefs that are consistent with their morals and experiences (Snow & Byrd 2007). This process of elaboration gives rise to (at least) three distinct collective action frames:

i) Food security as hunger
ii) Food security as a component of a community's developmental whole
iii) Food security as minimizing risks with respect to an industrialized food system's vulnerability to both "normal accidents" as well as the "intentional accidents" associated with agri-terrorism

(Mooney & Hunt 2009, p.469)

Mooney and Hunt "highlight the particular capacity of the framing approach to recognize the dynamic processes underlying discursive work in the field of organizations and social movements" (2009, p.471). Indeed, the three distinct frames they identify reflect the agendas of different actors and reveal how they use discourse as a tool to impose their preferred solution to the issue of food security. For example, they demonstrate how the diagnostic framing of food security proffered by the FAO is premised on global food supply which "facilitates the articulation of a 'free-trade' prognostic framing" consistent with neo-liberal economic ideology (Mooney & Hunt 2009, p.475). In stark contrast to this, a competing frame aims to debunk the claim of food scarcity and promote a more democratic and egalitarian approach to food security based on national food self-sufficiency and sustainable smallholder agriculture. The authors advocate further research which provides a fuller mapping of the diagnostic, prognostic, and motivational characteristics of the debate around food security, hinting at the important normative implications of these for future policy developments. The current research speaks to this lacuna, seeking to add depth and nuance to current understandings of how food security is framed by organisational actors with competing, conflicting, and overlapping interests.

Marks et al (2007) investigate mass media framing of biotechnology news, comparing coverage of medical biotechnology and agricultural biotechnology. They find that journalists interpret and report information about medical biotechnology more positively, whilst agricultural biotechnology receives more negative coverage. The authors conclude that "understanding news frames, and the events that drive them, provides some insight into the long-term formation of public opinion as influenced by news coverage" (2007, p.183). Also taking a media focus, Frewer et al (2002) use the social amplification of risk framework to investigate how increased reporting of the risks associated with GM food in the UK affected public perception of risk. They find that increased reporting of risk does in fact lead to higher public perception of risk, and that perceptions of benefit are permanently reduced by negative media coverage of GM food. These studies emphasise the important role of the media in shaping the nature and outcomes of the public issue framing contest around agricultural biotechnology, particularly with regard to the issue of risk. The current research will build upon this literature, identifying agri-biotech issue frames deployed by different organisations in this contest, and exploring how those frames are reproduced in the media. Taking a critical discursive approach to frame analysis and using signature matrices to deconstruct issue frames into their core elements will help shed light on how risk is

constructed within those different frames to serve the particular interests of their sponsors.

In a paper considering "the discursive foundations for promotion of agricultural biotechnology", Dibden et al undertake a comparative study of the UK and Australia, two nations which have taken divergent approaches to the adoption of agri-biotech (2013, p.59). They argue that competing representations of food security, food shortage, and progress provide discursive support for opposing positions on agricultural biotechnology. Despite political support for agri-biotech in both nations, and "adoption of science-based risk assessment as an anti-political strategy", its development has taken very different directions in the two nations, in part due to consumer mistrust and EU regulation in the UK (2013, p.68). The authors allude to the power of multinational agribusinesses and their influential allies in constructing a persuasive pro-biotech discourse, and in doing so, framing GM crops as a solution to food insecurity.

> "GM crops are constructed by biotechnology corporations, supportive scientists and policy-makers as providing technological solutions to the limits of natural systems, while other aspects of an adequate food supply (such as equitable distribution and farmer control of production) are downplayed. Opposition to agricultural biotechnology is framed as being morally irresponsible, condemning farmers to reduced or static production and the poor in developing countries to starvation"
>
> (Dibden et al 2013, p.68)

These studies demonstrate how the nature of the public debate around global food security and agricultural biotechnology is suited to the study of organisational discourse. Given that corporate, political, and civil society actors all have an important stake in how the debate is framed, the use of rhetoric and persuasion is prominent in this context. The complexity of the issue intensifies this effect, inviting a wide variety of responses and advocated solutions. Whilst the research introduced here pushes towards a deeper understanding of how the meaning of food security is constructed and contested, there is a lack of in-depth research examining food security discourse in a multi-organisational setting, particularly within Business literature. Indeed, Fontoura et al note that "food has been one of the most debated and contested discourses in recent global environmental governance without this fact being reflected, however, in management and organizational studies" (2016, p.424).

Summary

This chapter has provided an overview of the literature to which the current research seeks to contribute. It has identified organisational discourse as the broad domain of interest, focusing in on the subject of how organisations engage with contested issues in the international public arena. The chapter has sought to clarify how the research approaches the study of discourse. Specifically, the research focuses on the domain of rhetoric, oriented towards the study of external organisational discourse. The research takes a macro level perspective which conceives of discourse as "general and prevalent systems for the formation and articulation of ideas" (Alvesson & Kärreman 2000, p.1126). Taking a critical stance, the research is concerned with understanding how the relative power and political agency of different organisations influences their ability to create, promote and reinforce discourses which complement their own agendas (Marshak & Grant 2008). Rhetoric is conceived of as a form of discourse, characterised by the strategic use of symbols to create meaning, and to persuade. The deployment of organisational rhetoric is understood as a strategic means of influencing audiences important to the realisation of the organisation's interests.

The chapter then introduced frame theory, giving an overview of the current state of knowledge in the domains of social movement framing, corporate framing, and media framing. Public issue framing contests were highlighted as the focus of the research, characterised by discursive struggles over important social issues between organisations with competing and often conflicting interests. The research takes a macro level approach to frame analysis whereby frame theory is applied in the context of public debates (Dahan & Gittens 2010). The issue of global food security, and specifically the public debate around agricultural biotechnology, were introduced as the focal issues of the research. The extensive and international social, political and environmental implications of the discursive struggle around these issues make this an empirically rich as well as potentially impactful area of study.

Whilst this chapter has given an overview of the research landscape, the chapter which follows takes a closer look at the specific conversation to which the research speaks, identifying the theory and concepts where a meaningful contribution can be made.

Theoretical Positioning

Introduction

The purpose of this chapter is to dig deeper into the theory with which this research engages in order to provide a clear sense of positioning in relation to existing literature, and to identify the theoretical gap which the research seeks to fill. The chapter will begin by briefly outlining some limitations of framing research identified by eminent scholars in the field, identifying how the research seeks to move beyond these. One core limitation is the issue of context; after introducing different approaches to dealing with contextual factors in the framing literature, the concept of discursive opportunity structure will take centre stage. The concept refers broadly to "the aspects of the public discourse that determine a message's chances of diffusion in the public sphere" (Koopmans & Olzak 2004, p.202). It has significant scope for conceptual development and refinement, holding potential to help hone current theorisations of why certain issue frames gain traction whilst others never do. The current state of the literature dealing with the concept will be examined, with particular reference to the issues of stability, volatility, power, and political agency. In summary, the chapter works towards scoping out fresh theoretical space in which there is potential to develop and refine the concept of discursive opportunity structure.

Limitations of Framing Research

Despite its continued popularity among scholars from different disciplines, research employing frame theory has been subject to criticism on a number of key grounds (Benford 1997; Benford & Snow 2000; Snow et al 2014). Four of these are of particular relevance to this research, relating to i) construct clarity, ii) framing in a multi-organisational setting, iii) power, and iv) framing over time.

Construct Clarity

Some scholars have expressed concern over inconsistencies in the way frame theory is applied (Scheufele 1999), labelling it a "scattered conceptualization" (Entman 1993, p.51). Indeed, even just within the Management and Organisation literatures, the

meaning of the framing construct varies widely and it is associated with a range of different theoretical perspectives, research questions and methods. Cornelissen and Werner highlight the potential threat this raises to construct clarity when framing is used as "a single umbrella construct" encompassing a range of definitions and approaches (2014, p.182). Furthermore, there is often no distinction made between talk of 'frames' and 'framing', when in fact the two are most helpfully viewed as independent concepts. Goffman explained that when using the term 'frame' he was referring to

> "definitions of a situation [which] are built up in accordance with principles of organization which govern events – at least social ones – and our subjective involvement in them"
>
> (1974, p.10)

Frame analysis, in Goffman's terms, refers to examination of the "organization of experience" (1974, p.10). A *frame* is therefore distinct from an act of *framing*, in which language and other symbolic gestures are used to create new interpretive frames or reinforce existing ones (Cornelissen & Werner 2014). "This denotes an active, processual phenomenon that implies agency and contention at the level of reality construction" (Benford & Snow 2000, p.614). In order to maintain construct clarity and research quality, the research will use these terms accordingly[2].

In 1997, Benford wrote an 'insider's critique' of the social movement framing literature which highlighted a number of important shortcomings of the field as it stood. He wrote that "underlying the descriptive bias in the movement framing literature is the tendency to focus on frames as 'things' rather than on the dynamic processes associated with their social construction, negotiation, contestation, and transformation" (Benford 1997, p.415). In other words, research has focused on identifying frames rather than exploring framing in action. In response to this criticism, a number of studies have attempted to address some of these deficits, paying more attention to the dynamics of the framing process (Ansari et al 2013; Bach & Blake 2016; Carragee & Roefs 2004; Nijkrake et al 2015). However, there are still some key areas in which research is lacking, three of which will be further explored.

[2] These and other definitions can be found in the glossary of key terms.

Framing in a Multi-Organisational Setting

Benford's critique particularly recognised the need to "bring into focus the multi-organisational field in which collective action occurs" (1997, p.416), a call for attention which has been reiterated several times over the years (Benford & Snow 2000; Cornelissen & Werner 2014). Research which is more attentive to the multi-organisational setting of collective action and framing contests has begun to emerge, but the field still remains largely polarised. At one end of the spectrum there is a wide array of research into social movements and collective action frames, and at the other end research is focused on PR and corporate framing. Those studies which do acknowledge the multi-organisational nature of framing contests tend to favour one of these perspectives, and in doing so fail to map the contest in its entirety, sacrificing insights into the dynamics of the discursive strategies at play (Carragee & Roefs 2004). The insightfulness of these studies is limited by the fact that they tend not to "match their discourses up against the other side of the debate" (Dahan & Gittens 2010, p.228). Indeed, Snow et al claim that scant research attention has been "devoted to variation in framing the same event across different actors" (2007, p.388).

Dahan and Gittens (2010) sought to rectify this problem in their study which focused on the issue of slavery in the chocolate industry, using frame theory in the context of public debates to investigate how ethical public issues are socially constructed by organisations trying to further their own interests. The authors identified different issue frames constructed by a variety of organisations from different sectors, including corporations, NGOs, the media, and governments. They deconstructed the reasoning and rhetoric used by these different organisations, analysing their issue frames to reveal how they are strategizing actors which "attempt to impose their own definition and preferred solution on the issue" (2010, p.228). Dahan and Gittens' approach resulted in a rich analysis based on a less polarised mapping of the issue framing process, an approach which this study seeks to emulate. Exploring variation in framing of the same event across different actors can help to shed light on the factors that affect framing activity, including its creation, maintenance, and outcomes. This kind of approach also "lends itself to revealing how resources and other structural factors relate to the meaning-making activity" of different actors and organisations (Snow et al 2014, p.36).

Framing, Power & Political Agency

Benford and Snow argue that even though research into framing contests has abounded, it provides little insight into "the factors that tend to shape the outcomes of such contests, other than stating or implying the tautology that those who won employed the most resonant framings" (2000, p.626). However, they make some key observations about what research *has* revealed, including that framing contests occur within complex, multi-organisational settings, and that framing activity and its resonance are affected by the cultural and political environment. These observations hint at the need for greater attention to power dynamics in the study of framing contests. Indeed, framing research has come under direct criticism for neglecting to fully account for how issues of social and political power impact upon framing processes and outcomes (Carragee & Roefs 2004).

The multi-organisational contexts in which public issue framing contests occur are unquestionably characterised by significant differentials in power. It is important to consider how such power differentials impact upon the relative political agency of competing organisations as they seek to influence public discourse in pursuit of their particular interests and agendas. Political agency is simultaneously situated in political, economic and civil society spheres. These spheres are related, occupying "the same geographical-empirical place which is today in principle global" (MacLean 1999, p.182). However, we cannot assume that there is an equal distribution of political agency between these spheres, nor that it is held predominantly by one of them. The global, multi-organisational setting in which public issue framing contests take place is therefore a space of struggle in which issues of power and political agency cannot be overlooked. Indeed, the question of what kinds of political agency can be realised "is simultaneously a question about what kinds are marginalised, enclosed, made invisible, removed or not thought of" (MacLean 1999, p.174).

Carragee and Roefs (2004) note that though framing does not happen in a political vacuum, this fact is not adequately reflected in the literature. For example, studies often neglect to trace frames back to their sponsors and to give due consideration to the economic, cultural and political resources available to them in constructing, deploying and promoting frames. Indeed, frames "are not tools that actors [can] deploy at will"; there are a variety of factors that may facilitate or constrain the framing attempts of organisations (Kaplan 2008, p.737). When framing research does attempt to address issues of power, it often does so at a superficial level. For example, studies

are inclined to discuss how frame sponsors 'used their power' to achieve such ends as swaying public opinion or influencing policy, without elaborating on what that power was constituted of, or how it was manifested. Much of the framing literature therefore de-politicises the framing process by failing to account for the ways in which the power differentials at play in a multi-organisational setting impact upon the political agency of frame sponsors, and the implications this might have for the outcomes of public issue framing contests. In contrast, the current research takes a political agency perspective on framing in order to strive towards a deeper understanding of how the relative power of organisations with competing and often conflicting interests affects their engagement with discursive opportunities to influence public discourse and affect political change.

Framing over Time

Benford's critique of the framing literature highlighted the need to broaden the temporal focus of framing studies, arguing that to date, most are either synchronic or account for a relatively brief period of time. He expressed a need for "studies which examine continuities and changes in framing strategies, their forms, and the content of frames over the life of a movement, throughout a cycle of protest, or across an historical epoch" (1997, p.417). This kind of dynamic approach may be important in shedding light on processes such as frame emergence, evolution, maintenance and decline, providing a fuller understanding of how framing activity shapes a public issue at more than one point in time.

Research which examines framing strategies over longer periods of time has begun to emerge over recent years. Ansari and colleagues (2013), for example, conducted a longitudinal analysis in which the frames and logics of key actors including scientists, governments, corporations and CSOs were tracked over the course of a forty year period. This enabled them to identify shifts in the framing of global climate change, revealing changes and developments in actors' framing activity, and how they were able to "move toward greater consensus around a transnational commons logic" (Ansari et al 2013, p.1014). Litrico and David (2017) also conducted a longitudinal framing study, focusing on the framing and interpretation of the environmental issues of noise and pollution in the aviation industry over a fifteen year period. The longitudinal nature of the study facilitated the authors' analysis of how issue framing

evolved over time, enabling them to theorise about framing trajectories in relation to societal discourse.

These studies clearly demonstrate some of the benefits of longitudinal analysis in research using frame theory. This observation is particularly relevant to research on framing contests, where the strategic framing activities of different organisations are constantly in flux as competing actors contest each other's frames and respond to changes and developments in the socio-political context. Indeed, the combination of longitudinal and multi-organisational perspectives is key to capturing the strategic dynamics of issue framing contests as they play out in the public arena. Furthermore, whilst research in this domain tends to focus on framing at the thematic level, further attention to changes in specific frame content at the elemental level over time is needed in order to provide a fuller understanding of how organisations change and develop their framing strategy over time (Benford 1997).

The current research responds directly to the four limitations set out above by striving for construct clarity, remaining attentive to the power dynamics at play between organisations and how these play out in the multi-organisational setting in which framing contests occur, and focusing on how framing evolves over time. The main limitation of framing research which this research seeks to address, however, relates to the issue of context.

The Importance of Context

It is widely acknowledged in the literature that the framing processes of social movements, corporations and other organisations involved in framing contests in the public arena need to be understood in the light of the broader contexts in which they are embedded (Benford & Snow 2000). Snow (2004) highlights several 'embedding concepts' that have emerged which help to conceptualise these broader enveloping contexts, namely 'organisational fields' (DiMaggio & Powell 1983), 'multi-organisational fields' (Rucht 2004), 'discursive fields' (Steinberg 1999), and 'discursive opportunity structures' (Koopmans & Statham 2009). The concepts of organisational, and latterly multi-organisational fields, have arisen to conceptualise the complex system of relations between organisations that, "in the aggregate, constitute a recognized area of institutional life" – not simply those that compete or interact directly, but all relevant actors including, for example, suppliers, consumers,

manufacturers, regulatory agencies, competitors and so on (DiMaggio & Powell 1983, p.148). The concepts of discursive fields and discursive opportunity structure serve a similar function but with an explicit focus on the discursive aspects of the multi-organisational context and the interactions taking place in that space.

Snow (2013) refers to several scholars concerned with discourse and meaning-making who have grappled with the connection between culture and structure. In doing so, some have engaged with the concepts of discursive fields and discursive opportunity structure. Steinberg describes discursive fields as "dynamic terrain in which meaning contests occur" (1999, p.748), agreeing with the notion that "fields both constrain and enable in the sense of limiting meaning construction as well as providing the tools for meaning work" (Snow 2013, p.368). Discursive opportunity structure can be understood as "elements in the cultural landscape that make some movement frames more resonant than others" (McCammon 2013b, p.1094). Within the framing literature there is an unhelpful tendency to conflate the two concepts, as exemplified by Johnston who claims that "the concepts of discursive opportunities and discursive fields refer broadly to the cultural climate of a movement's messages" and to the "favourable cultural environments and trends – intellectual, legal, or popular – which movements may draw upon and link with to enhance their support" (2013, p.366). Though there is undoubtedly considerable conceptual overlap between these two terms, in order to maintain conceptual clarity, it is important to distinguish between them on some key grounds.

Snow (2004) explains that discursive fields are a culturalist concept. They "emerge or evolve in the course of discussion of and debate about contested issues and events, and encompass not only cultural materials (e.g. beliefs, values, ideologies, myths and narratives, primary frameworks) of potential relevance, but also various sets of actors whose interests are aligned, albeit differentially, with the contested issues or events, and who thus have a stake in what is done or not done about those issues and events" (Snow 2004, p.403). The concept of a discursive field, therefore, refers to the nature of the environment in which meaning-making takes place, and acknowledges that the shape and characteristics of that environment influence the meaning-making process. Discursive opportunity structure, on the other hand, is a structuralist concept. It encompasses many of the same elements as the kindred concept of discursive fields, including "the cultural resources, interactants, and framing debates that constitute them", but is also attune to the influence of the enveloping political context (Snow

2004, p.403). In this sense, discursive opportunity structure brings together the sensitivity to cultural context advocated by the concept of discursive fields with the awareness of political context promoted by its parent concept of political opportunity structure.

Discursive Opportunity Structure

The concept of discursive opportunity structure arose in response to a perceived failing of another better-established embedding concept, political opportunity structure. Political opportunity structure emphasises the role of institutional structures and power configurations in facilitating or constraining the issue framing attempts of social movements. The concept "refers to all of the institutional and cultural access points that actors can seize upon to attempt to bring their claims into the political forum" (Ferree et al 2002, p.62). Koopmans and Statham argue that although it accounts for the wider political context in which social movements operate, the concept suffers from an "inability to deal adequately with the *discursive* content of social movement mobilization", and as such "has difficulty in dealing with the common finding that opportunity structures do not facilitate and constrain all movements to the same degree and in the same way" (1999, p.227 – emphasis added). The authors contend that scholars who have sought to address this issue by extending the concept in various ways have pushed it beyond its conceptual limits and into the domain of frame theory. Similarly, theoretical developments in the framing perspective have unfolded as researchers have sought to integrate contextual factors into their explanations of why some frames are more resonant than others. Consequently, Koopmans and Statham argue that there has been a "convergence of the two perspectives [which] needs to be conceptually acknowledged" (1999, p.228).

Discursive opportunity structure is proposed as the concept through which to capture the convergence of the POS and framing perspectives, encompassing the common ground which has developed between them "where both perspectives refer to political-cultural or symbolic external constraints and facilitators of social movement mobilization" (Koopmans & Statham 1999, p.228). It plays an important role in "determining which ideas are considered 'sensible', which constructions of reality are seen as 'realistic', and which claims are held as 'legitimate' within a certain polity at a certain time" (Koopmans & Statham 1999, p.228). In other words, by appealing to the

right ideas in the broader socio-political environment, a certain framing is more likely to be well received and to facilitate the desired response. In the social movements literature this response is usually considered to be the effective mobilisation of a social movement such as through the recruitment of new members, influencing public opinion, and bringing about changes in policy (McCammon 2013a). For a business this may mean securing its reputation and gaining both public approval and favourable policy outcomes for its operations. Discursive opportunity structure has both cultural and institutional components, which in practice means that organisations seeking to effect political change need to consider both the alignment of their framing efforts with prevalent beliefs and values in wider society, as well as navigating the key institutional avenues that need to be followed in order to officially state their claims with those that play a key role in defining public discourse (Ferree et al 2002; McCammon 2013a).

Discursive Opportunity & the Media

The concept of discursive opportunity structure has been most widely engaged with in research relating to the media and social movements. Koopmans (2004) identified three selection mechanisms which affect the opportunity for the diffusion of a movement's message through the media. These selection mechanisms are 'visibility' (the extent to which the mass media provide coverage of a message), 'resonance' (the extent to which others react to a message), and 'legitimacy' (the extent to which such reactions are supportive). Snow describes Koopmans' offering as "the most straightforward and researchable conception of discursive opportunities" (2008, p.6). Indeed, the approach helps Koopmans to demonstrate how interactions between social movements and political authorities are increasingly mediated by the media.

The same mechanisms are further explored by Koopmans and Olzak (2004) in their analysis of right-wing violence in Germany. Using the notion of discursive opportunity to bring together theoretical perspectives on POS and social movement framing, they attempt to deal with frame theory's over-emphasis on the internal meaning-making processes that may determine a social movement's success at the expense of important external factors. The authors argue that this over-emphasis explains why "framing theories have difficulty in explaining why some such strategies meet with favourable responses while others do not" (Koopmans & Olzak 2004, p.199). In order to reassert the importance of public discourse in social movements, they highlight how, alongside

the political context as understood through POS, and internal meaning-making processes as understood through frame theory, visibility, resonance (both *consonance* or supportive resonance, and *dissonance* or negative resonance), and legitimacy may influence a movement's outcomes.

Snow argues that we should "think in terms of institutionally specific discursive opportunities" as exemplified by Koopmans' media focus, rather than in terms of a more general, over-arching discursive opportunity structure (2008, p.6). This is important, he contends, in order for the concept to not fall prey to the same shortcomings as its parent concept, political opportunity structure, whose breadth of application renders it largely meaningless. Furthermore, he claims, conceptualising discursive opportunity structure in terms of specific institutions allows more conceptual space for the consideration of other discursive contextual factors which may shed light on framing processes. Ferree et al note that whilst the media is central to meaning-making processes, it is "only a part of the institutional and cultural structures that channel and organize discourse" (2002, p.62). The extent to which the role of the media dominates public meaning-making processes will vary according to the societal context. For example, in their study of abortion discourse in Germany and the United States, Ferree et al (2002) argue that whilst in Germany the institutionalized actors that dominate the public sphere play an important role in meaning interpretation, in the United States where these institutionalised actors are comparatively weaker, the mass media become primary agents of meaning interpretation.

Institutionally Specific Discursive Opportunity Structures

Cammaerts proposes the adoption of the *mediation opportunity structure* which he describes as "an overarching concept, semi-independent from the political opportunity structure, and comprised of the media opportunity structure, the discursive opportunity structure and the networked opportunity structure" (2012, p.119). Media opportunity structure refers to the extent to which social movements are able to convey their messages through mainstream media and in doing so exert their influence in the public sphere. Network opportunity structure relates to the interconnectedness of the networked environment in which social movements operate, including information and communication technologies. By combining these concepts with

discursive opportunity structure, Cammaerts presents a framework which, he argues, is able to "encompass a wide variety of ways in which media and communication are relevant to protest and social movements" (2012, p.117). There is little doubt that the three concepts brought together in this framework can each provide insight into the dynamics of communication in social movements, and that they are complementary to each other. However, analytic focus is arguably lost in seeking to account for so many factors concurrently. Indeed, Snow's insistence that the concept of DOS would benefit from focusing on institutionally specific discursive opportunities was based on the concern that too general a use of the term would result in it falling prey to the fate of its parent concept, POS, which is "invoked to explain everything and thus nothing" (2008, p.6). Contrary to the theoretic dilution of increasingly vague catch-all concepts, DOS would arguably benefit from further distillation into analytic specifics, enabling richer insights into particular thematic or institutional contexts.

Some research which attempts to deal with more institutionally specific discursive opportunities has emerged in recent years. Molaei (2015), for example, explored the role of social media in aiding the diffusion of the messages of two Indonesian social movements through the mainstream media and into the public sphere, concluding that social media presented specific discursive opportunities which facilitated widespread dissemination of the movements' messages. Adler et al (2014) conducted research on the role of religious congregations in social movements, considering how discursive opportunity structure impacted on the ability of politically active religious congregations to mobilise voters. Though the main institutional location of discursive activity considered by the study was the mass media, it also highlighted the importance of other meaning-making institutions including symbolically powerful religious organisations. Bröer and Duyvendak (2009) sought to elaborate on the concept of discursive opportunity structure by theorising the role of feelings in explaining why activists experience some events as potential opportunities. They looked specifically at political discourse, and the ways in which policy structures discursive opportunities for the mobilisation of protests against aircraft noise. However, whilst these studies each in some way engaged with institutionally specific discursive opportunity structures, this was largely incidental to their research objectives rather than an explicit attempt to develop theory regarding institutionally specific discursive opportunities.

Schurman (2004), on the other hand, explores the potential for theorising industry specific opportunity structures. She introduces the concept of *industry opportunity*

structures in order to explore the dynamics of social movements directed at actors other than the state. Industry opportunity structures are conceptualised as being composed of economic, organisational, and cultural features. These features, she argues, "function to enhance or constrain social movements' efforts to change industry behaviour" (Schurman 2004, p. 243). Focusing on the anti-biotech movement in Western Europe, Schurman explains how some key industry vulnerabilities, combined with the cultural and political context of late 1990s Western Europe, created a powerful opportunity for activists to deter consumers from supporting the biotech industry. The research identifies four aspects of industry structure which provide both opportunities and constraints to social movements seeking to challenge corporate behaviour:

i) Economic and competitive behaviour of firms in an industry
ii) Relationships among actors in an industry's larger 'organizational field' or system
iii) Corporate cultures
iv) The nature of the goods and/or services an industry produces

Schurman (2004) argues that unveiling these structures and recognising their significance for social movements is of upmost importance given the unceasing swell of corporate power. However, she also recognises that industry structures represent just one set of factors that help to explain why social movements may succeed or fail in their attempts to bring about change. She describes a number of strategies and tactics used by the anti-biotech movement including the mobilisation of expert knowledge, symbolic acts of protest, leafleting, organising community meetings and so on. Although her conceptualisation of industry opportunity structures does not explicitly address *discursive* opportunities, she does acknowledge that the discursive tactics engaged by the movement enabled them to capitalise on vulnerabilities stemming from the industry structure.

> "A final weapon the movement mobilized against the industry and technology – and one that crosscut all of the tactics just described – was a discursive one. The anti-biotech movement expended enormous energy constructing and communicating alternative frames through which people would interpret and apprehend these new biotechnologies"
>
> (Schurman 2004, p.254)

In her discussion of political framing around race, class and gender, Ferree (2009) draws on an example of contrasting discursive opportunities in Germany and the US which were an important factor in attempts to affect institutional change in feminist politics. She speaks of institutionalised frameworks of understanding "in which particular issue debates and rivalries among the leading actors are embedded" (2009, p.87). These frameworks are constructed by political entities such as nation states and transnational organisations. They are constituted in part by a variety of authoritative texts which, she claims, offer a discursive structure that shapes the opportunities available to political actors and thus can be conceived of as discursive opportunity structures. Ferree's discussion, though perhaps not designed with the intention of elaborating on institutionally specific discursive opportunities, offers some useful insights into the dynamics of discursive opportunities in the political domain. She observes that authoritative political texts such as laws, constitutions, directives, treaties, and administrations "never 'speak for themselves' but need to be interpreted, implemented and enforced" (Ferree 2009). Ferree's insights are a useful starting point for thinking about how texts from different institutional domains may vary in the degree of authority they carry, and therefore also in terms of the level or rigidity of structure they provide. Texts from non-political domains, for example, may well 'speak for themselves' to a greater extent, such as corporate reports or newspaper articles.

Stability, Selectivity & (Political) Agency

Echoing Benford's critique of the framing literature, McCammon et al (2007) suggest that "studies fail for the most part to situate the framing efforts of movement actors in the larger cultural context in which the framing occurs" (p.726). They argue that only by incorporating and responding to critical discursive elements in the broader societal context will a movement succeed. In order to anticipate what kind of framing will achieve most resonance, it is important to first have an idea of the ideologies, beliefs and values of the broader 'cultural milieu' (Gamson 1988) or 'discursive field' (Steinberg 1999). Only then is it possible to "tap into this larger system of meaning by articulating frames that echo, amplify, and even extend specific aspects of ideological orientations" (McCammon et al 2007, p.731). Building on these observations, McCammon et al (2007) adopt the concept of discursive opportunity structure to theorise about what kinds of framings will be politically persuasive. However, they

claim that the concept remains underdeveloped in the literature, progressing to offer some of the most useful preliminary theoretical developments of the concept so far.

Focusing on movements seeking specific political outcomes such as changes in policy, the research of McCammon et al (2007) seeks to develop three aspects of the discursive opportunity structure concept. The first of these is concerned with how *stable* or *volatile* the discursive context in which a movement deploys its frames is. On the one hand discursive opportunity structures can be highly stable, "that is, opportunities for politically effective collective action framing can stem from discourses that are long lived and deeply embedded in the surrounding culture" (p.732). On the other hand, more volatile discursive opportunities can arise "that derive from relatively short-lived or relatively new ideational elements", though they are no less significant, and contribute to the "shifting terrain" of social movement activism (McCammon et al 2007, p.732). The second issue elaborated on by the authors is the *selective* nature of discursive opportunity structures. They refer to Ferree, who claims that "discursive opportunity structures are inherently selective" in that some frames resonate more than others with critical elements of the broader discursive field (2003, p.306). This is because they "tap into the vocabulary, underlying principles, and narratives of salient discourses in the broader cultural environment" (McCammon et al 2007, p.732). The authors also assert that the selective nature of discursive opportunity structures varies in that some provide a suitable context for a wide range of movement frames whilst others may only support a narrow range. The third aspect of discursive opportunity structure which McCammon et al (2007) develop concerns the *agency* of actors or organisations in deciding whether and how to respond to discursive opportunities. The authors argue that the combination of opportunity and agency is important, and that there are a broad variety of reasons why an actor or organisation may or may not respond to a particular discursive opportunity, and may or may not align their frame with key ideational elements in the broader discursive field.

The current research speaks in terms of *political* agency, explicitly acknowledging that organisations engaging with discursive opportunities to shape the outcomes of public issue framing contests are invariably seeking to have a political impact. That is, their aim is to open up spaces of political possibility where the meaning of the issue and the practices associated with it can be shaped, reinforced, contested, negotiated, or transformed. Whilst McCammon and colleagues (2007) refer specifically to the agency

of social movement actors and organisations, the current research takes a multi-organisational perspective and is therefore concerned with the political agency of a range of organisational actors engaging in the public issue framing contest over global food security. Given the often clashing and competing interests and agendas of organisations seeking to make their voices heard on this issue, to speak of political agency is necessarily to speak of power.

Power & Discursive Opportunity

Ferree's critical approach to frame analysis recognises that discursive opportunity structure is "open, dynamic, and imbued with power, not just something that exists passively as text 'on paper'" (2009, p.89). The power dynamic inherent in discursive opportunities is a factor also highlighted by Shriver et al (2013). They employ the concept of discursive opportunity structure to facilitate their research into framing contests between social movements and elite (state and private) actors. The authors study elite attempts to dominate public discourse by deploying oppositional frames against environmental activists campaigning against the placement of a highway bypass in the Czech Republic. Specifically, they explore how elites used counter-framing techniques to exploit salient discursive opportunities. Strategies of the elite countermovement involved mobilising oppositional frames designed to distort the environmentalists' message and cater to public fears, stigmatising the environmentalists as untrustworthy extremists. This effective 'discursive obstruction' campaign gained momentum, provoking such strong reactions from residents that it resulted in threats, harassment and some instances of violence against environmentalists (Shriver et al 2013, p.877). Discursive obstruction is a term introduced by the authors to conceptualise oppositional campaigns executed by networks of elite actors who use their power to turn public opinion against movements that challenge their interests.

Shriver et al argue that it is the power and legitimacy of elite groups that enables them to shape popular opinion and shift public support against those who challenge their agendas. For example, they describe the use of 'official frames' by state officials who use their power to produce and/or promote frames which work in their interests (2013, p.874). The fact that these frames are promoted by people in positions of public responsibility arguably helps to construct the legitimacy of the frames and produce and

reproduce the authority of the officials (Livesey 2002). The authors conclude that the social positioning of different actors and the power differentials that exist between them play a pivotal role in determining which frames come to dominate public discourse. The use of official frames by elite actors in this research particularly highlights the importance of raising questions of power and agency regarding which organisational actors are able to access discursive opportunities to influence the outcomes of public issue framing contests. Maintaining awareness of the complex dynamics at play in the multi-organisational settings in which framing contests occur is key to ensuring the integrity of such analyses.

Adams and Shriver (2010) compare the framing activity of corporate actors and the alternative agro-food (AAF) movement, which is described as "the social activity of sustainable agriculturists, local food advocates, environmentalists, food security activists, and others who are working to bring about changes at a variety of different levels of the agro-food system" (Hassein 2003, p.80). The authors examine the way cultural and political discourses can present discursive opportunities for the framing activities of both social movements and corporations, shaping their respective strategies. They use a qualitative discourse analytic approach to explore the communications of AAF movements and corporate agribusinesses, focusing on websites as their central unit of analysis. Five overarching frames are identified, namely i) institutional regulations, ii) supporting evidence, iii) external responsibility, iv) the environment, and v) value-embedded issues. Existing public discourse is then examined in order to gain insight into how discursive opportunity structures affect the level of success experienced by corporate agribusinesses and AFF movements in promoting their messages.

Adams and Shriver's analysis provides some interesting insights into the framing contest between corporations and the AAF movement. Particularly noteworthy is their suggestion that "existing public discourse can simultaneously facilitate the success of movement messages and make them vulnerable to appropriation, co-optation, and commodification" by corporations (2010, p.53). One example they provide of such co-optation is through the use of the discourse of external responsibility. The authors found that an external responsibility frame was an overarching element of AAF movement communications, expressing commitment to the people, the land, and the environment, and incorporating the themes of partnership and collaboration. These themes were also found to feature in corporate communications. The authors argue

that corporate agribusiness' ability to encapsulate localised sentimental stories of external responsibility into short, media-friendly packages facilitated public understanding in a way that is difficult to achieve for AAF movements whose communications about their policy-focused, macro-level work were less likely to carry broad public appeal. Another interesting observation emerging from the study is that corporations were less likely to deploy values-based frames dealing with issues of fairness in food systems than the social movement actors, suggesting that "these may be much more difficult for corporations to substantiate" (Adams & Shriver 2010, p.52).

Adams and Shriver's findings are of particular relevance to the current research given their focus on a framing contest between corporate and civil society actors, their concern with power, and their location in the context of debates around global food systems. Indeed, the study provides some useful insights into the similarities and differences between the communication strategies of multinational agribusinesses and social movements. However, Adams and Shriver's application of frame theory takes place at a broad thematic level. Indeed, in their discussion the authors claim that their analysis "provides evidence that overarching AAF movement themes are heavily utilized in corporate organizational literature" (2010, p.50). In this sense, the analysis does not provide insight into the complex schemata of interpretation deployed by the organisations involved, or provide targeted insight into how frames interact with discursive opportunity structures. However, the study undeniably provides a useful foundation and reference point for framing research in the global food systems domain.

Scope for Conceptual Development

Though research has begun to address some of the criticisms voiced by Benford, Snow and others, there is still a tendency to oversimplify pervading the framing literature. Frame theory has traditionally associated particular types of framing with specific sectors and types of organisation. However, many of the core framing processes identified in the social movements literature and applied predominantly to the study of activists, CSOs, and collective action, are increasingly evident in organisational discourse across different sectors. Indeed, Ken notes that though "these techniques have been analyzed in great detail when they are enacted by SMOs", corporations may also borrow these tactics as they seek to turn potential threats into opportunities (2014, p.134). Organisational discourse is changing rapidly. Corporations, for example,

now in many ways communicate more like CSOs, whilst CSOs increasingly corporatise their communications (Maiers et al 2005). Whilst research is beginning to reflect these developments (Adams & Shriver 2010; Dahan & Gittens 2010), if frame theory is to remain useful then it must keep pace with changes in the complex dynamics of organisational discourse, particularly in the fast-evolving age of digital communications. The concept of discursive opportunity structure represents one theoretical domain of the framing literature where there is an opportunity to escape the tendency to oversimplify, and to shake off the conceptual constraints of traditional understandings of organisational discourse.

As the literature discussed suggests, the concept of discursive opportunity structure arose in the study of social movements and thus far has predominantly received attention in that domain. It has been established throughout this chapter that frame theorists have called for research which is more attentive to the multi-organisational setting in which framing contests occur (Benford 1997; Benford & Snow 2000; Cornelissen & Werner 2014). That is to say, research which not only considers the role of a broader range of framing competitors, but which also doesn't privilege the perspective of one organisation over others (Carragee & Roefs 2004; Dahan & Gittens 2010). There is no reason to suggest that the concept of discursive opportunity structure cannot be harnessed effectively in research considering a broader range of organisations. Though the concept was originally developed to theorise opportunities for effective collective action (i.e. social movements), it holds significant potential for understanding opportunities for effective framing beyond that domain. After close scrutiny of the literature, three key gaps in the conceptual development of theory relating to discursive opportunity structure notably require closer attention, namely i) the relative stability or volatility of discursive opportunities, ii) the relative power and political agency of different organisational actors in creating and accessing discursive opportunities, and iii) how frames, at their elemental level, interact with discursive opportunities.

Stability & Volatility

Preliminary theorisation around the relative stability or volatility of discursive opportunity structures offered by McCammon and colleagues (2007) provides a firm foundation for further theoretical development and refinement. Ferree et al (2002)

note that the 'structure' in discursive opportunity structure implies stability, but that this is not entirely helpful. They suggest that "it is useful to treat stability as a variable element, running from highly inert components that are more or less permanent features of the terrain to windows of opportunity that may be open only briefly" (2002, p.62). If this is the case, then new questions arise. How can we usefully differentiate between stable and volatile discursive opportunities? What constitutes a stable or inert component, and can these characteristics be gauged by frame sponsors? Cornelissen and Werner state that "discursive opportunity structures refer to the opportunity provided by salient discourses *that are alive and have momentum at a particular point in time*", again alluding to fluctuations in the vitality and temporal stability of discursive opportunities (2014, p.210 – emphasis added). It is important to ask what implications these characteristics have for actors engaging in framing activity. For example, are certain organisations more inclined to use stable discursive opportunities than volatile ones? Do volatile opportunities offer greater rewards than stable ones, and does this affect how they're engaged with, or by whom? Many of the pertinent questions arising from these observations relate to how organisations use stable and volatile discursive opportunities to contest public issues.

The literature suggests that the more volatile elements of discursive opportunity are open to influence by actors who wish to shape public discourse (Ferree et al 2002). Reinecke and Ansari emphasise the role that external 'jolts' may play in providing "contextual openings for responsibilizing companies" (2016, p.324). They do not elaborate on what form these jolts might take, but their claim aligns with the general trend in the framing literature that sees volatile discursive opportunities as potentially salient access points for the framing efforts of social movements. They state that external jolts cannot be conceived of as entirely external in that they "figure in an already developing narrative" (Reinecke & Ansari 2016, p.324). Indeed, the literature suggests that stability and volatility are not mutually exclusive but can coexist as new discursive opportunities arise against a backdrop of overlapping discourses of varying stability (McCammon et al 2007). This again raises the question of which opportunities different organisations are likely to engage with, as well as how, and why?

The complexity of the discursive environment in which framing contests occur is not without consequence. Whilst the literature indicates that volatile discursive opportunities are characterised by a level of unpredictability, it also implies that stable discursive opportunities may also be disrupted.

> "the contours of the playing field can change suddenly in the middle of the contest because of events that lay beyond the control of the players; and the players can themselves sometimes change the contours through actions that create new discursive opportunities. This complex playing field provides advantages and disadvantages in an uneven way to the various contestants in framing contests"
>
> (Ferree et al 2002, p.62)

The remarks of Ferree and colleagues highlight not only that there is more to be learned about the relative stability or volatility of discursive opportunities, but also that this feature is closely intertwined with the power dynamics at play between organisations engaging in public issue framing contests.

Power & Political Agency

Further research is required to understand more about the relationship between power, political agency and discursive opportunity. Litrico and David argue that "by portraying framing as a skillful and strategic activity, scholars fail to describe how the framers may be constrained or enabled by the social context in which they are embedded" (2017, p.989). That is, we must consider factors beyond the skill of frame sponsors when thinking about why some frames dominate public discourse whilst others struggle to gain traction. The concept of discursive opportunity holds potential to shed light on how contextual factors, together with issues of power and its distribution among framing opponents, may influence the outcomes of issue framing contests. In the elite framing literature, scholars have sought to shed light on how powerful actors dominate public discourse. Preliminary insights in this domain include theorisation around discursive obstruction and frame co-optation (Adams & Shriver 2010; Shriver et al 2013). This emergent literature indicates that the nature of public discourse has a bearing not only on whether certain frames resonate, but also on how susceptible they are to appropriation or co-optation (Adams & Shriver 2010). As such, it provides a starting point for thinking about how different types of discursive opportunity (in this case stable or volatile) may constrain or facilitate frame co-optation, and what that means for the framing strategies of different organisational actors.

In this context, is useful to think of power in terms of the political agency it affords frame sponsors, that is, their relative capacity to achieve political influence. Some questions of political agency have been raised in the framing literature. For example, Reinecke and Ansari (2016) expressed the need to explore how activists construct political opportunities over time, suggesting that such opportunities may arise through the active efforts of organisations seeking to influence public discourse, as well as through changes in the socio-political environment. In this context, we might enquire as to how the agency of different organisations opens up spaces of political possibility (Ranganathan 2014), and so conceive of political agency in terms of capacity to create discursive opportunities, or to negotiate discursive space within complex networks of power. Indeed, arguing that frames must not be divorced from the contexts in which they are produced, Carragee and Roefs (2004) advocate an analytical approach which traces frames back to their sponsors and gives due consideration to the cultural, political and economic resources available to them. Such an approach to thinking about attempts to dominate public issue framing contests must acknowledge different modes and manifestations of power rather than privileging traditional resource-based understandings of power (Phillips & Hardy 1997). Constructing, reinforcing, challenging or transforming dominant discourse requires significant ideological work (Carragee & Roefs 2004). This work requires the mobilisation of a wide range of resources; material, cultural, symbolic, political, relational, and otherwise. The current research will therefore consider how such resources affect the relative capacity of different organisations to engage with discursive opportunities to influence public discourse.

Issue Frames & Discursive Opportunities: An Interactional Approach

Most research on discursive opportunity structures to date claims to show that "actors can exploit discursive opportunities to make their frames more resonant" by tapping into broad themes that feature in public discourse (Shriver et al 2013, p.890). In the same way that the framing literature was criticised for "implying the tautology that those who won [the framing contest] employed the most resonant framings" (Benford & Snow 2000, p.626), this claim arguably goes little further than implying that those who won seized the best opportunities. In order to refine theory surrounding discursive opportunity structure, research must seek to explore *how* those opportunities were seized. That is, what are the *processes* through which organisations

engage with discursive opportunities. Specifically, how do organisations engage in framing activity that unlocks a particular opportunity?

The current research begins addressing these questions by bringing together insights from the literature on discursive opportunity with a more nuanced form of frame analysis used in several exemplary studies. Whilst most framing research operates at the broad thematic level and speaks in general terms about the diagnostic, prognostic and motivational features of a frame, these exemplary studies use signature matrices to break down frames into their component elements (Gamson & Lasch 1981; Creed et al 2002a). In taking this approach, the research aims to provide targeted insights into how frame elements interact with or target certain features of discursive opportunities, be they cultural and symbolic or institutional and normative. Furthermore, these insights are enriched through the application of rhetorical theory. By analysing the way organisations use their rhetorical power to *select* and *name* events in certain ways, it is possible to gain insight into the motives and agendas of organisational rhetors (Hoffman & Ford 2010; Vatz 1973). Some research using signature matrices to conduct frame analysis has made observations about the use of rhetoric on a general level. For example, Creed et al describe how their approach to analysis can highlight underlying political agendas and point to contradictions between rhetoric and practice, noting that they "found contradictions, tensions, unexamined assumptions, and rhetorical sleights of hand" in the texts they examined (2002a, p.47). However, few studies have applied specific insights from rhetorical theory to frame analysis using signature matrices. Frame elements are symbolic devices which constitute the characteristic elements of an ideas package, or frame (Gamson & Lasch 1981). Organisational rhetoric is all about how organisations strategically deploy symbols to influence and persuade. Bringing together these two complementary forms of analysis is a novel and potentially fruitful approach to exploring how organisations use discursive opportunities to influence the outcomes of public issue framing contests.

Sensitivity to Levels of Analysis

Today's society is characterised by challenges which are global in nature. Climate change, food insecurity, inequality, conflict – these complex and interconnected issues give rise to both talk and action which are equally global in nature. For example, multilateral organisations such as the FAO, and global initiatives such as the Sustainable Development Goals, represent internationally coordinated efforts to

identify and resolve global challenges and progress towards a fair and functioning global society. Significant discursive opportunities for effective issue framing therefore exist at this level. Indeed, research suggests that there are distinctly transnational components to discursive opportunity structures (Motta 2015). However, global challenges are also defined and responded to at regional, national and local levels, and the cultural and institutional access points which determine how discursive opportunities for effective issue framing are structured therefore also exist at these levels. For example, anything from national legislative frameworks to highly localised cultural norms can affect the potential opportunity for resonant framing. It may be argued, then, that a narrower focus, such as a particular nation, community, or more localised issue, may be a worthier choice of research context than the vast issue of food security on the global stage. However, given the urgency of some of the international challenges we face today, and the increasing prevalence of global organisations and initiatives emerging to address them, seeking to understand how opportunities to shape the nature of that global conversation arise and are seized or missed is arguably a worthy pursuit. Nonetheless, all due care and attention must be given to maintaining active awareness of the systems and structures at regional, national and local levels which overlap with and impact upon the debate as it unfolds in the international public arena.

Summary

Scrutiny of the framing literature has highlighted a dearth of research recognising the complexity of framing dynamics, specifically regarding important contextual factors affecting the potency and perceived legitimacy of different framing attempts. Cornelissen and Werner argue that "the notion of discursive opportunity structure offers a clear direction for further research", and one that potentially offsets Benford and Snow's criticism of the reduction of framing contests to the search for the most resonant framing (2014, p.210). To date, however, the concept remains underdeveloped in the literature (McCammon et al 2007). In order to contribute to the concept's theoretical development, this research considers how organisations use discursive opportunities in the context of public issue framing contests. Specifically, the research seeks to build on preliminary refinements offered by McCammon and colleagues relating to the relative stability or volatility of discursive opportunities. Furthermore, the research acknowledges that the power dynamics at play in framing

contests over important public issues require careful attention. Indeed, Shriver et al claim that "power and discursive opportunity are equally critical to future conceptualizations and analyses of other framing contests" (2013, p.890). The research therefore raises questions of voice, seeking to shed light on how the relative power and political agency of different organisations affects the ways in which they engage with discursive opportunities to influence the outcomes of public issue framing contests.

Methodology

Introduction

This chapter discusses the methodological approach adopted for the purposes of the research and sets out the philosophical and theoretical foundations for this approach. The research process is explained in detail, including justifications for the choices which have been made regarding data gathering and analysis. The following central question will guide the research process:

How do organisations use discursive opportunities to contest public issues?

The issue of agricultural biotechnology as it relates to wider debates about global food security will lend conceptual structure to the study. By providing contextual focus, two supporting questions will facilitate more detailed exploration of the theoretical concepts under study and lend structure to the analysis:

What agri-biotech issue frames get activated in public food security discourse?
How do organisational interests shape the framing process?

The chapter will begin by setting out the philosophical approach of the research, laying a foundation for the rationale behind the methods adopted. The subsequent sections will elaborate on various elements of the research design in turn, discussing their merits and the rationale behind their selection. The issues of agricultural biotechnology and food security will then be introduced as the issue-focus of the research, with reference to the key events and focal organisations that are central to the analysis. This will be followed by a detailed breakdown of the data gathering and analysis procedures, as well as comments on reflexivity, research ethics, and research quality criteria. The chapter will conclude with a brief summary of the key features of the methodology.

Research Philosophy

At the heart of contemporary philosophy of science lie fundamental questions concerning what science is, the methods of enquiry it should adopt, how much confidence can be placed in those methods, and what the limits of scientific knowledge

might be (Okasha 2002). These are questions of ontology and epistemology which must be diligently addressed by anyone seeking to conduct rigorous research in both the social and natural sciences. Ontology is concerned with the nature of reality, and is closely tied to epistemology, which refers to how that reality can be known and understood. The ontological and epistemological assumptions of a researcher will therefore have significant implications for their research design such as the kinds of research questions they are likely to ask and how they conceive of their object of inquiry.

Objectivism is an ontological position which maintains that certain things exist independently of human knowledge or our perception of them. The epistemological position of positivism stems from objectivist ontology and has strong roots in empiricism, which assumes that 'genuine' knowledge must be testable by observation or experiment through which facts can be established in an objective manner (Scott & Marshall 2009). Positivist research therefore seeks to derive laws and generalisations inductively through experience and observation. A positivist researcher may, for example, conduct statistical research which measures the frequency with which a certain behaviour occurs in order to derive social theory with predictive capacity. Positivist approaches to social research have been criticised on the grounds that they emphasise facts and observation "at the expense of conceptual reflection and theoretical enquiry" (Scott & Marshall 2009, p.214). Furthermore, Shipman argues that they assume "a passive human subject to laws" whilst ignoring "the meaning of events for those involved" (2014, p.25). The complexity of human life and social interaction has led many researchers in the social sciences to look beyond positivism to alternative approaches such as interpretivism, critical theory, feminism, critical realism, and pragmatism.

Interpretivism is closely associated with constructionist ontology. There are several different forms of constructionism, but all are based around the assumption that there is no one objectively knowable truth. Rather, the way we understand the world around us is dependent upon the meanings we attach to things and the way we interpret them. This means that social phenomena and their meanings are constantly being constructed, defined and redefined within society (Bryman 2008). One of the central concerns of interpretivist epistemology is to look beyond the focus on fact and observation associated with positivism to explore the meanings and motives underlying social actions and interactions. This research project is strongly influenced

by interpretivism, emphasising the importance of human participation in the construction and interpretation of meaning as we engage in social life.

In their seminal book *The Social Construction of Reality*, Berger and Luckmann (1966) make a case for the importance of what they term the 'sociology of knowledge', best understood as inquiry into how reality is socially constructed. The authors argue that "society does indeed possess objective facticity", whilst also maintaining that society is "built up by activity that expresses subjective meaning" (1991, p.30). They explain the coexistence of these two seemingly contradictory ideas as a duality in the nature of society which is central to its unique character, or 'reality *sui generis*'. Of central interest within the sociology of knowledge is the question of how "subjective meanings *become* objective facticities" (Berger & Luckmann 1991, p.30). In other words, in order to gain insight into the unique nature of society we must seek to understand the process through which its reality is socially constructed.

One way to do this is through the study of discourse. There are a wide variety of understandings of discourse within social science generally and organisation studies more specifically (Alvesson & Kärreman 2000). The term is perhaps most commonly used "to refer to particular contexts of language use" such as political discourse or media discourse (Baker & Ellece 2011, p.31). Wetherell et al claim that many researchers would be satisfied with the 'broad brush' definitions of discourse as 'language in use' and 'human meaning-making' (2001, p.3). Indeed, such breadth has led to a wide range of methods and approaches to research falling under the general banner of 'discourse analysis' including hermeneutics, ethnomethodology, rhetorical analysis, metaphorical analysis, and semiotic analysis to name just a few (Heracleous 2006). However, discourse is often considered to carry more ideological weight than such loose definitions would imply, and several more complex definitions have emerged from various theories of discourse as a result.

Many scholars associate the term with the work of Foucault, who defines discourse as "practices which systematically form the objects of which they speak" (1972, p.49). From this perspective discourse is a system of representation constituted both of language *and* of practice (Hall 2001). This notion that language and practice are constitutive of social reality underpins discourse analytical research methodologies. This research project takes a critical approach which emphasises the ideological significance of discourse and acknowledges the pivotal role of language in shaping our knowledge of the world around us, as well as the power relationships that structure

our societies. Discourse, then, refers to "a set of meanings, metaphors, representations, images, stories, statements and so on that in some way together *produce* a particular version of events" (Burr 1995, p.48 – emphasis added). The emphasis on production crucially acknowledges the *active* nature of this phenomenon through which social reality is co-constructed by producers of discourse with particular interests. It is according to these same principles that Benford and Snow describe issue framing as "an active, processual phenomenon that implies agency and contention at the level of reality construction" (2000, p.614).

Adopting a perspective which acknowledges the ideological nature of discourse leads directly into dealing with the tradition of critique. The fact that language "allows for multiple versions" of social reality "creates an argumentative and rhetorical context" (Wetherell 2001, p.17). In other words, discourse has a purpose; it is designed to resonate and to persuade. It is also open to contestation. The active contest between competing representations brings the issue of power into question. How is it that some representations become dominant, and whose interests do those representations serve? Taking a critical, socio-political approach to discourse, power can be defined "in terms of a preferential *access* to, and *control* over, public discourse by social groups or organizations" (Van Dijk 2011, p.3). Thus, when a group or organisation has power, it can significantly influence the production and reproduction of discourse until such a time as it becomes established as the status quo. Such hegemonic discourse often acts as a tool of oppression, setting the parameters for what is acceptable, possible, or even legal.

This is not to deny agency. Critical approaches to discourse have traditionally emphasised the structural features of discourse and their links to societal structures of domination whilst ignoring the role of individual and organisational agency in *using* discourse (Heracleous & Hendry 2000). The current research deviates from this tradition in asserting that though agents' choices may be constrained by existing structures, they are not determined by them. The discursive perspective on power adopted here emphasises how the relative political agency of different organisational actors influences their capacity to shape public discourse. Certain power configurations may constrain an organisation's capacity to influence public discourse and related practices. However, others may facilitate its efforts, enabling the organisation to reinforce hegemonic discourse, or to create space for discursive struggle through which to challenge the status quo. For example, the formal authority of the UK government gives the Food Standards Agency control over labelling practices, so that

foods containing or consisting of GMOs must be labelled accordingly (FSA 2018). However, the concept of a GMO is open to contestation, and organisations with an interest in how it is understood can work to challenge this concept, even if they have little power over labelling laws. In as much as the processes of discourse production and contestation serves to reproduce, challenge or transform power relations, the organisation is engaging in a political process (Phillips & Hardy 1997).

To summarise, this research project is concerned with understanding how organisational discourse constructs public issues in particular ways. Taking an interpretive approach which acknowledges human participation in the construction and negotiation of meaning, it explores how organisations use discursive opportunities to influence the outcomes of public issue framing contests. Furthermore, it seeks to critically examine the role of organisations in shaping subjective meanings which become objective facticities, enacted through policy, legislation, the distribution of goods and services, and so on (Berger & Luckmann 1991). Maintaining awareness of the multi-organisational context in which framing contests occur, the research is committed to taking a dialogical approach which presents "a multiplicity of conflicting perspectives and multiple realities" rather than a monological account representing the perspective of a dominant group (Heracleous 2006, p.2). The research focuses on exploring who gets to shape public discourse, why this is the case, and what the consequences of such a system might be.

Research Strategy: Justification of Methods

When thinking about how to approach a research project, it is important to ensure that the chosen methodology makes sense in light of the research question and can be justified accordingly (Phillips & Di Domenico 2009). The methodology of this research is designed to:

i) Facilitate in-depth examination of the concept of discursive opportunity structure, particularly regarding questions of stability and volatility.

ii) Explore how issues of power and political agency affect the ways in which organisations shape public discourse through engagement with discursive opportunities.

iii) Enable critical examination of organisational interests through deep frame analysis.

iv) Focus on global food security; a contested public issue with significant social impact.

The table below summarises the rationale for each element of the research design and demonstrates how they are linked to the research priorities. The ensuing sections introduce and unpack each element of the research design in more detail.

Table 1. Summary of Research Design & Rationale

Research Design	**Rationale/Link to Research Priorities**
Frame Analysis (Signature Matrix)	Deconstructing organisational discourse to reveal component elements of framing strategy and how they interact with discursive opportunities. Analysing the context & purpose of the communications to gain insight into organisational interests.
Critical Discourse Analysis & Rhetorical Analysis	Focusing on how organisations influence public discourse - attentive to the role of language in shaping public issues. Analysing power relations surrounding agri-biotech & global food security. Facilitating insight into how these affect political agency.
Documentary/ Textual Data	Enduring public record of strategic organisational discourse. Wide range of sources available. Facilitates longitudinal research.
Discursive Opportunity Analysis: Timeline & Key Events	Timeline to track evolution of agri-biotech discourse & map socio-political context → perspective for discursive opportunity analysis. Key events give rise to new volatile discursive opportunities which overlap with existing stable discursive opportunities.
Issue Focus: Agricultural Biotechnology & Food Security	Highly contested public issue with multiple conflicting perspectives, overlapping & competing interests. Contemporary issue with international relevance and significant social, political & environmental implications.
Focal Organisations	Help define the data boundaries. Facilitate in-depth analysis of a real-world framing contest in context.

Frame Analysis

In essence, framing is discourse in action. Frame analysis therefore complements discourse analysis by providing insight into how discourse is structured into neat packages of meaning that can be deployed to influence and to persuade. It has potential

to reveal how discursive struggles over contested issues play out in the public arena and are "shaped by strategizing actors, (including firms, NGOs, the media and governments), in an attempt to impose their own definition and preferred solution to the issue" (Dahan & Gittens 2010, p.227). The impacts of the outcomes of such struggles on public opinion, policy, and resource mobilization make this an important area of study. Discursive opportunity structure is one aspect of frame theory with potential to help shed light on the contextual factors that help determine the outcomes of public issue framing contests, influencing "which ideas are considered 'sensible', which constructions of reality are seen as 'realistic', and which claims are held as 'legitimate' within a certain polity at a certain time" (Koopmans & Statham 1999). In order to understand how discursive opportunities are created and accessed, it is therefore first necessary to conduct a frame analysis to see how discourse is structured into packages of meaning. Thereafter, discursive opportunity analysis can help to reveal how those packages of meaning are deployed in an active framing contest to influence and persuade through appeals to the socio-political context.

The research adopts a frame analysis methodology developed by Creed et al (2002a) which focuses on the content and structure of a message, identifying key themes and frames. The approach is based on four main concerns:

i) Sorting out underlying logics
ii) Situating frames in context
iii) Surfacing politics, subjugated voices & implicit ideologies
iv) Making mindful choices as organisational scholars

(2002a, p.35)

This approach proved fruitful for Dahan and Gittens (2010) who advocate the use of a signature matrix to deconstruct all the elements of a message before progressing to think about its purposes and the context in which it is situated. The signature matrix was developed by Gamson and Lasch (1981), who claim that different organisational actors offer a variety of interpretive packages to attribute meaning to events as they unfold in society. They conceive of each package as being composed of a set of elements; framing devices (metaphors, exemplars, catch-phrases, depictions and visual images) and reasoning devices (roots, consequences and appeals to principle). These 'signature elements' allude to a frame's core message in a shorthand fashion, acting as 'condensing symbols' through which it can be displayed (Gamson & Lasch 1981, p.3). Unpacking these symbols can bring insight into the interests and agendas of frame

sponsors, helping to shed light on "how organizations shape the social systems in which they are embedded" (Creed et al 2002a, p.35).

The signature matrix was identified as a suitable tool for the purposes of this study given both the emphasis it places on the importance of seemingly small or insignificant features of a message, and the combined effect of these features as they come together to form a distinct package of ideas, or frame (Creed et al 2002a). A preliminary trial was conducted to assess the signature matrix's suitability in practice. This involved analysing a food security related web page of one pro-biotech organisation (Monsanto) and one anti-biotech organisation (Global Justice Now). This process helped the researcher to get a feel for identifying different features of the texts, and to learn good practice such as how to depict frames in a way that has 'narrative fidelity' to the frame sponsor (Creed et al 2002a). During this trial some of the difficulties of conducting such an analysis came to light. For example, some frame elements seemed to meet the criteria for more than one category, and it was therefore difficult to know how to treat them. It was initially necessary to keep reading and re-reading the category descriptions in order to make decisions on how to deconstruct and categorise the data. However, in time the framework became more familiar to the researcher and the process became easier. The signature matrix proved to be a highly useful framework for unpacking the different features of a frame.

The signature matrix technique contributes to the overall research strategy and objectives by helping to identify both the individual features of an organisation's message and whole packages of ideas encompassed in coherent frames. These can then be mapped against the timeline of key events to provide insight into the ways in which the framing activity of different organisations interacts with the discursive opportunity structure. McCammon et al argue that discursive opportunities are inherently selective in that some frames resonate more than others because they "tap into the vocabulary, underlying principles, and narratives of salient discourses in the broader cultural environment" (2007, p.732). The tool's sensitivity to detail means that it facilitates fine-grained analysis by highlighting how individual frame elements are able to tap into specific features of discursive opportunity in this way. The signature matrix is therefore integral to understanding the framing strategies of different organisations, and the extent to which they are able to influence discourse around contested public issues.

Frame analysis also involves identifying the diagnostic, prognostic and motivational features of the frames (Snow & Benford 1988). This stage of analysis takes a step back from the detail of the signature matrix to a more thematic level, exploring how organisations diagnose what a problem is about and attribute responsibility, how they propose a particular solution or plan of attack, and how they articulate a call to arms to convince their audience to act. Dahan and Gittens (2010) argue that whilst using a signature matrix offers insight into the building bricks of a frame, analysis of the diagnostic, prognostic and motivational features of a frame give insight into its purpose. In this way, it can facilitate insight into the interests of the organisations involved in the issue framing contest, allowing a critical interpretation to develop. Why, for example, might a certain diagnosis of the problem suit a particular organisation? How does that diagnosis lead to a prognosis which may suit them more than an alternative? Are there any factors that the diagnosis fails to account for, or even attempts to silence? As well as thinking about the diagnostic, prognostic and motivational features of the frames, in order for the analysis to stay rooted in its context, it is also important to think about the intended audience, arena and sponsor of a frame (Creed et al 2002a). Indeed, several exemplary studies have taken this approach (Dahan & Gittens 2010; Fiss & Hirsch 2005; Maguire & Hardy 2006).

Critical Discourse Analysis & Rhetorical Analysis

The term discourse as adopted here refers to systems of representation which mediate our understanding of reality. This reality is constructed and maintained through language and practice. Discourse analysis, therefore, is inquiry into the ways in which language and practice shape the way we know and understand reality (Hall 2001). Extending this to a critical perspective, discourse can be conceptualised as "power–knowledge relationships, constitutive of subjects' identities and of societal structures of domination" (Heracleous & Hendry 2000, p.1252). Therefore, *critical* discourse analysis considers not just the way in which language and practice shape our understanding of reality, but also "the way social power abuse, dominance, and inequality are enacted, reproduced, and resisted by text and talk in the social and political context" (Van Dijk 2001, p.352).

Though CDA scholarship encompasses a wide range of approaches, researchers are united by a concern with language and the role it plays in the construction,

perpetuation and legitimisation of social inequality (Wodak 2001). Ideologies are an important element of the study of discourse, and can be understood as "representations of aspects of the world which can be shown to contribute to establishing, maintaining and changing social relations of power, domination and exploitation" (Fairclough 2003a, p.9). Language is ideological. It is a medium through which the world can be represented in different ways, and it can therefore be harnessed as a medium of domination and social power. To the extent that language serves to build and sustain undesirable and unjust ideological structures, it needs to be better understood. Indeed, Fairclough makes a strong case for research which demystifies the rhetorical wizardry of organisations, by which they make "the socio-economic transformations of new capitalism and the policies of governments to facilitate them seem inevitable; representing desires as facts, representing the imaginaries of interested policies as the way the world actually is" (2010, p.282). Consequently, the current research takes a critical discursive perspective which conceives of power as "exercised by modifying the discourse that underlies important concepts and/or objects" (Phillips & Hardy 1997, p.171). Changing the way concepts and objects are understood, or indeed reinforcing dominant understandings, shapes social structures and practices, influencing what is considered (un)desirable or (il)legitimate, and is therefore an inherently political act. Therefore, the research conceives of the ability to exercise power (or lack thereof) through the modification of discourse in terms of political agency. Consequently, for the purposes of the current research, political agency is understood as the mobilisation of power resources (both traditional and cultural/discursive) for the modification of discourse in order to achieve political ends.

Of particular interest is the social power of organisations, groups or institutions. In this context, discourse is understood as a medium through which power can be exerted by members of one social group or institution over another (Van Dijk 2001). Van Dijk draws upon the well-known example of Tony Blair's legitimation of the UK's participation in the US-led war on Iraq to demonstrate this power dynamic in action. His analysis of Blair's speech in the House of Commons highlights how through the use of strategies such as ideological polarisation, discrediting opponents, and emotionalising the argument, "even a powerful parliament like that of the UK may be manipulated into accepting the Prime Minister's policy… Blair defines the situation in such a way that few MPs can refuse, even when they know they are being manipulated and probably lied to" (2006, p.380). Control over public discourse (through any

number of channels such as news and opinion articles, textbooks, parliamentary debates, the internet, advertising, and so on) is therefore a hugely important power resource. Research has demonstrated how the media plays an important role in this process, shaping public opinion on a range of issues such as nuclear power (Gamson & Modigliani 1989), new racism (van Dijk 2000), Islam (Bail 2012), and climate change (Nisbet 2009).

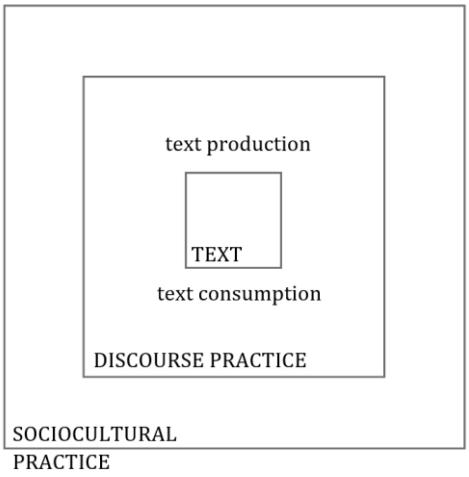
Rhetoric is a form of discourse which is characterised by the strategic use of symbols to create meaning and to persuade. Organisations are "the largest producers of rhetoric in contemporary society" (Hoffman & Ford 2010, p.17). They wield extraordinary power, exercising much of it through their communications. This is particularly true for corporations, which have such power that they are able to shape how people think about such fundamental issues as who they are, what they believe, and what they should value (Deetz 1992). However, corporations frame public issues through a variety of communicative practices and media (e.g. brochures, TV advertising, websites, advertorials), not all of which are deliberately (if at all) manipulative. Rigorous critical scholarship must resist the temptation to dismiss corporate rhetoric as "beyond remediation" (Palenchar 2011, p.573). Rather than treating rhetoric as "a synonym for lies", or disregarding it as "meaningless adornment ('mere rhetoric') that masquerades as insight", Conrad advocates an alternative view of rhetoric as a "set of complex processes through which people construct distinctive views of reality, persuade others to share their beliefs and values, and create distinctive social, political, and economic structures that are legitimized through strategic discourse" (2011, p. x).

CDA is ideally suited to this kind of research due to its strong linguistic character, influenced by the hermeneutic methodological traditions, and its attentiveness to social power dynamics (Meyer 2001). Approaches to CDA vary widely, and researchers differ in such specifics as the linguistic theory they choose to apply and the order of analysis they adhere to. Several researchers take a two phase approach to CDA, with the first phase often focusing on content and structure before developing a finer analysis in the second phase (see for example Caruana et al 2018; Jäger 2001). Similarly, this research will involve a two phase process of analysis. The first phase will involve an inductive process of identifying, defining and labelling issue frames using signature matrices (Gamson & Lasch 1981). The second stage will draw on rhetorical theory in order to conduct a higher level analysis from which a critical interpretation can develop.

Fairclough's (2003b) three-dimensional framework of analysis focuses on revealing the often opaque linkages between discourse, ideology and power in particular discursive events. The approach conceives of each discursive event as having three dimensions: "it is a spoken or written language *text,* it is an instance of *discourse practice* involving the production and interpretation of text, and it is a piece of *social practice*" (p.136). This approach involves making the connections between texts and discourses, situating them in both their historical locations and their social contexts. Phillips and Hardy provide a neat example of this principle in practice:

> "To understand from a discourse analytic perspective why a particular person is a refugee, we need to explore how discourses such as asylum, immigration, humanitarianism, and sovereignty, among others, serve to make sense of the concept of a refugee. To learn how such discourses have evolved over time, we can study texts such as cartoons, newspaper articles, and international conventions. We must also examine the social context – wars, natural disaster, court decisions, international agreements, the government of the day, political events in other countries – to see how they are brought into play in particular discursive events. This interplay between text, discourse, and context helps us to understand not only how an individual comes to be a refugee, but also how the broader 'reality' of refugee policy and refugee determination procedures is constructed and experienced"
>
> (Phillips & Hardy 2002, p.4)

Figure2. Framework for Critical Discourse Analysis of a Discursive Event



(Fairclough 1995, p.59)

It is useful to note that, as suggested by the visual representation of the three dimensions of a discursive event portrayed in Figure 2, the dialectic relationship between texts and sociocultural practice is indirect in that discourse practice (processes of production and consumption e.g. editing and interpretation) mediates between texts and sociocultural practice (Fairclough 1995).

In line with Fairclough's three-dimensional approach, there are three levels at which discourse is significant for the purposes of this research project. Firstly, the text itself, and the language of which it is constituted. Secondly, the level of production where a text is constructed, distributed, and interpreted. And thirdly, the level at which that message interacts with structures of meaning in the public domain, perhaps constructing new systems of meaning, or challenge or reinforcing existing ones. This third level refers to "social (macro) discourse practices that provide the context for particular discursive events", and is the domain in which 'orders of discourse' operate (Livesey 2002, p.321).

It is useful to think of discourse analysis as 'oscillating' between a focus on specific texts on the one hand, and 'orders of discourse', or the social structuring of language and social practice, on the other (Fairclough 2003a, p.3). Rather than fixating solely on the intricacies of a given text, it is important to step back and consider how a particular discursive event both draws upon (normatively or creatively) and contributes to different orders of discourse. Does it perhaps reproduce or restructure boundaries or relationships? (Fairclough 1995). This can be a valuable exercise in the quest to understand how language shapes our experience of the world, and how organisational discourse contributes to discursive structures which may help to legitimise and sustain patterns of social domination (Heracleous & Hendry 2000).

CDA generally takes a broad view of linguistic features such as metaphors, sequencing, perspective, coherence, complexity, and syntactic and grammatical features. In most cases rhetoric is simply another one of these features considered in parallel with the rest. However, developments in rhetorical theory, and specifically in techniques for analysing the rhetorical strategies of organisations, have rendered it particularly suitable for understanding the "political function of organizational narratives in society", shedding light on how organisational discourse can shape societal power relations (Heath 2011, p.17). Cheney et al claim that "while rhetoric centres on persuasion and identification, CDA orients its work to the concept of power. In this way, the two methodological and philosophical traditions of rhetorical criticism and

CDA offer complementary and overlapping schemes for analysing language in organizations" (2004, p.81). This complementarity is demonstrated through the emphasis each places on the relationship between language and social practice, as well as the contexts in which they are embedded[3]. For this reason, rhetorical theory will sit alongside CDA as a complementary approach for the purposes of the second phase of analysis.

Documentary/Textual Data

The important role of documentary data in qualitative research has often been underestimated, and as a result, documentary data has typically been under-utilised by researchers (Lee 2012; Atkinson & Coffey 2004). This is perhaps due to an unfounded underlying assumption amongst some researchers that 'primary data' is superior to 'secondary data' (Rapley 2007). However, documents are an important part of everyday life, used in all sorts of social processes. Their role is of particular interest in organisational research given that they are deeply embedded in organisational life (Atkinson & Coffey 2004). There are numerous ways in which documentary data can be perceived, handled and analysed. Constructionist, interpretive approaches to research which conceive of language as constitutive, as exemplified by this study, are particularly notable for the insight they can provide into the various versions of reality that are produced and sustained by documents (Atkinson & Coffey 2004).

Traditional understandings of what documentary data is were once limited to material documents such as government papers, diaries and newspapers (Scott 1990), but more recent definitions have evolved to incorporate a broader range of records such as film, photographs, CDs and websites (Lee 2012). As well as internal documents such as contracts, policies, meeting minutes and business plans, there are publicly available documents through which organisations represent themselves to the outside world including company websites, annual reports, prospectuses and so on (Bryman & Bell 2011; Atkinson & Coffey 2004). Furthermore, external documents relating to the organisation such as magazine or newspaper articles, industry reports and NGO

[3] Exemplified in the tradition of CDA through the notion of discourse as a moment of social practice (Fariclough 2001), and in rhetorical criticism through the concept of the rhetorical situation (Bitzer 1968).

reports can be rich data sources. The fact that many documents are easily accessible and are often freely available online or in public libraries and archives means that there are fewer costs associated with documentary research compared with other approaches. Documentary research is also usually much less intrusive than methods such as interviewing and observation (Lee 2012). This ease of access can facilitate research, saving valuable time which can then be spent pursuing depth and quality of analysis. Working with documentary data, however, does have its own challenges. The sheer number of online sources can be difficult to organise and time consuming to process (Rapley 2007; Bryman & Bell 2011).

Documentary data of this kind is of great value to those wishing to study organisational discourse. For example, documentary data can be used to examine the way businesses use rhetorical devices to construct a version of reality which improves their competitive advantage. Livesey and Graham did just that, exploring the way in which Royal Dutch/Shell Group used 'eco-talk' to (re)create and (re)construct the firm's relationship to nature in response to widespread criticism over its environmental record (2007, p.336). In order to do this, they analysed a variety of documents including Shell's position papers and reports, company websites and UN publications. The availability of a broad variety of documentary data was an enabling factor in the research process, providing insight into the wider context in which events took place and facilitating access to the perspectives of key players. Drawing on multiple types of publicly available documents enriches this research by accommodating the voices of organisations from different sectors with a diverse array of perspectives, interests and agendas. The fact that these are "naturally occurring" texts makes them particularly suitable for the discourse analytical approach of the research given that they are "actual examples of language in use" and therefore form "part of the discourses that constitute the phenomenon under investigation" (Phillips & Hardy 2002, p.71).

Livesey and Graham gathered texts relating to the public debate that took place between Shell and its critics, noting that the "texts of that conflict document the company's transformation" (2007 p.339). They collected documents produced before the debate ensued, as the conflict developed, and after it had died down to track how the company's engagement with the discourse of 'sustainable development' evolved. This demonstrates how documentary data lends itself to longitudinal research, facilitating analysis over a longer period of time than could be covered by alternative data sources (Lee 2012). The researchers were able to map the development of Shell's

'eco-talk' against reports of its actual behaviour in order to demonstrate the process of the reality catching up with the rhetoric over a number of years. Indeed, the fact that documents endure over time means that events, debates, decisions and representations otherwise long forgotten can be drawn upon to enhance qualitative research.

The nature of the data that documents can give access to also contributes to their suitability for this research project. Dahan and Gittens note that the public documents they gathered, including web sites, policy statements, press releases, reports, brochures and leaflets, allowed them to explore the "ethical rhetoric of public issues" and to "understand the impact of actors' discursive strategies in shaping these issues" (2010 p.231). Utilising public documents creates the potential to build a rich body of data from a wide range of sources representing a variety of perspectives. Whilst the mediated responses of corporate representatives seeking to give the 'right' answers to interview questions may give insight into certain issues of interest, public documents give access to the carefully constructed representations of themselves that corporations (and other organisations) choose to release into the public domain. Just as Dahan and Gittens (2010) were able to gain unique insight into the public construction of an ethical debate, this research project harnesses the wealth of publicly available organisational documents to explore discourse around the contested issue of global food security.

The question of the authenticity and credibility of data sources is an important consideration when utilising documentary data, particularly when conducting online searches where the origins of information are often unknown (Lee 2012). Scott (1990) argues that documentary data should be assessed in terms of its authenticity, credibility, representativeness and meaning before it is considered suitable. The way these criteria are applied, however, depends on the nature of the research. For instance, in the example of research into Shell's 'eco-talk', Livesey used "uncensored public discussion threads published on Shell's websites" as a source of data (2002, p.320). Whilst in some research this kind of data would be assumed to lack credibility, in this instance it helped to enrich Livesey's understanding of the conflict between Shell and its critics. When using 'unofficial' online data of this kind, it is important to remain transparent about the questionable reliability of any unconventional data sources, reflecting on how this may have affected the findings and their interpretation.

Discursive Opportunity Analysis: Timeline & Key Events

Whilst the frame analysis section described the rationale for a process of identifying and analysing frames, this section elaborates on the analysis of framing in action. In order to analyse how different organisations have used discursive opportunities to influence the outcomes of public issue framing contests, the research engages in discursive opportunity analysis. Previous research has taken different approaches to analysis of discursive opportunities. The most commonly adopted approach utilises the selection mechanisms of visibility, resonance and legitimacy to investigate how an organisation's messages diffuse through the media (Koopmans & Olzak 2004). However, given that one of the primary aims of this research is to explore the relative stability or volatility of discursive opportunities and the agency of organisations in accessing them, a different approach is required.

The construction of a timeline can facilitate framing research, helping to track the evolution of discourse against which a framing contest takes place. Dahan and Gittens adopted this approach, gathering instances of public discourse produced by different actors engaging with the debate around labour conditions in the cocoa industry. They ended up with a wide range of documents including press releases, policy statements, websites, corporate reports, legislation and so on. Forming the first stage of analysis, these documents helped them to create a timeline in order to "clarify the chronological sequencing of the discursive contest" (2010, p.231). This chronological sequencing is an important element of framing contests in which competing rhetors will often challenge and respond to each other, and to issues and events in the wider socio-political context, adapting their strategies as the discursive struggle plays out. In order to differentiate between stable and volatile opportunities, the research uses such a timeline in combination with analysis of news coverage to identify key events in the history of the debate over agricultural biotechnology. The timeline also provides important contextual insights for the discursive opportunity analysis.

The approach is based on the premise that events which attract significant media attention can be conceived of as discursive events which give rise to volatile discursive opportunities in that they open up new (but limited and potentially unpredictable) cultural and institutional access points for competing organisations to frame issues in particular ways. These volatile discursive opportunities are not isolated but overlap with stable underlying discourse in as much as they "figure in an already developing narrative" (Reinecke & Ansari 2016, p.324). For example, a new volatile opportunity

might arise from a symbol which gains new significance and visibility as an event unfolds. This was the case in 2014 when students protested against China's plan to vet potential leadership candidates in Hong Kong's first leadership election, and protesters used umbrellas to shield themselves from the tear gas and pepper spray deployed by police. The umbrella took on significance as a symbol of peaceful defiance, and umbrella-filled images rapidly spread across social media platforms giving new momentum to the movement (Alfred 2014). At the same time, a stable and long-lived discursive opportunity was present in the existence of Hong Kong's enduring political culture of traditional Confucianism. Veg explains how on that basis protesters were able to deploy a group of slogans which established a "strong connection with traditional China, using classical references to reaffirm a position of moral superiority and principle" (2016, p.683). Analysis of organisational framing activities over the course of key events therefore represents a chance to compare and contrast the ways in which different organisations engage with stable and volatile discursive opportunities to influence the outcomes of public issue framing contests.

Issue Focus: Food Security & Agricultural Biotechnology

In order to effectively answer the central research question and gain insight into the phenomenon of discursive opportunity structure, it is necessary to choose an issue focus that meets several important criteria. Firstly, the issue must be *publicly contested*; the research relies on the issue being subject to a framing contest. This includes the presence of competing discourses which adopt a variety of diagnostic, prognostic and motivational framing techniques (Snow & Benford 1988). The issue framing contest must incorporate *multiple voices* representing *different interests and agendas*. The issue focus must also be sufficiently meaningful in terms of *impact,* so that the outcome of the debate has significant implications in terms of policy and public interest**.** This section will elaborate on the suitability of the focal issue with reference to these criteria, specifically with regard to how the issue focus helps the study to address the central research question.

The issue that has been chosen to give contextual grounding to this research is the use of agricultural biotechnology as a response to the issue of global food security. As a particularly rich strand of public discourse surrounding food security, the issue of agri-biotech provides a great context in which to study issue framing contests.

Bioengineering is a relatively new phenomenon; the first major developments, including the first genetically modified plant, legislation making GM products patentable, and release of the first US Food and Drug Administration (FDA) approved GM product, all occurred within the 1980s. These developments have largely taken place in the name of improving global food security. However, whilst there is widespread acceptance that food insecurity represents a significant threat to global stability, there is little consensus beyond that.

Public debate regarding the problem of global food insecurity, how it became so severe, and why it persists, is rife and often heated. There is much uncertainty surrounding the question of how best to address the problem, not to mention which of the many advocated pathways to food security best serves the general interest (Dahan & Gittens 2010). The way food security is framed has significant consequences, producing a variety of outcomes for different social and organisational actors. For smallholder farmers, for example, certain framings may result in changes in land ownership rights or restrictions on traditional indigenous practices. For large agribusinesses different framings may have implications such as an increase or reduction in government-business oversight, or changes in legislative freedom for the development and protection of new agri-products. For the general public, the way food security is framed may bring about changes in food prices and consumption practices, or perhaps provoke a transition from citizen-government relations to a new era of consumer-corporate relations. The results of framing contests therefore have significant implications for a variety of organisations and actors from different sectors, as the subjective meanings emanating from them translate into objective outcomes with real life consequences.

One prominent diagnosis of the problem of food insecurity is that the quantity of food currently produced is insufficient to nourish the world's burgeoning population. This leads many (including large agribusinesses) to the conclusion that agricultural biotechnology presents a legitimate solution, facilitating mega-scale production with potential to 'feed the world'. This position has bred dissent, particularly among those concerned with the ever-increasing power of multinational agribusinesses and the privatisation and monopolisation of world food systems. Others argue that whilst more agricultural production is needed to feed the world's growing population, the way to achieve this sustainably is by scaling up smallholder farming using traditional techniques including saving seed and promoting biodiversity rather than GM

monocropping[4]. On an altogether different tack, some claim that the problem of food insecurity is not strictly a population issue but rather one of over-consumption, arguing that reducing food waste and drastically reducing meat consumption would present a more effective and desirable solution to the problem of food insecurity. The strong presence of NGOs such as GRAIN, Global Justice Now, Save Our Seeds, and La Via Campesina staunchly opposing GM technologies and seed patenting and promoting the concept of food sovereignty testifies to the public struggle over this important issue. The competing discourses briefly outlined here provide an ideal context for researching public issue framing contests, presenting as they do a variety of perspectives adopting an array of diagnostic, prognostic and motivational framing techniques.

Large agribusinesses have an important stake in how the issue of agricultural biotechnology is perceived by policy makers and the general public. Their profitability depends on securing and maintaining legislative freedom to develop, patent, sell and protect their GM seeds and related products. Consequently, their framing activities are likely to involve the use of rhetoric and other strategic devices, appealing to salient discourse in the socio-political context. NGOs also have an important stake in how the issue of agricultural biotechnology is publicly perceived. They face increasing pressure to produce tangible results and are constantly under public scrutiny, as well as fighting for the legitimacy and financial resources they need to continue operating (Burger & Owens 2013; Vestergaard 2014). In the public arena where much of the debate surrounding agri-biotech plays out, the media, national governments, and multilateral organisations each also have their own stakes and agendas, and play an important role in shaping discourse. This is precisely the kind of rich multi-organisational context in which the study of discursive struggles playing out in public discourse can prove fruitful. The high stakes and often conflicting and overlapping agendas of the different organisations involved make this a rich setting in which to gain insight into the role of discursive opportunity structure in public issue framing contests.

It goes without saying that the kind of issue which is publicly contested is likely to have implications that are a matter of public interest. The outcomes of public issue framing

[4] Monocropping is a practice involving growing a single agricultural product year on year in a large area of land

contests influence policy and ultimately shape local, national and international responses to social problems. These may or may not be the best solutions. The importance of understanding why certain framings achieve legitimacy whilst others do not, therefore, cannot be overstated. This is certainly the case when it comes to the issue of agricultural biotechnology and the overarching theme of global food security. As Mooney and Hunt put it, "the continual adjudication of… contested claims to defining food security directly impacts the technological and political restructuring of agriculture and the sociospatial organization of rural regions" (2009, p.494). These outcomes have serious implications for many social groups, not least the poorest of the poor across Southern Africa, South East Asia and Latin America whose livelihoods are often dependent on smallholder agriculture.

In terms of impact, then, the issue of agricultural biotechnology as it relates to food security is highly relevant. High-profile mergers between the world's largest agribusinesses testify to their power and undisputed domination of world food systems. Indeed, European Parliament recently voted in acceptance of a highly critical report produced by the European Union Development Committee about the New Alliance on Food Security and Nutrition (launched under the auspices of the G8) on the grounds that it promotes corporate interests. In this context, it is difficult to conceive of how such powerful multinationals can be held to account. Understanding who controls public food security discourse and how is therefore incredibly important.

Sampling: Selecting the Focal Organisations

The research adopted a purposive sampling technique, broadly informed by that of Adams and Shriver (2010), whereby the characteristics of the organisations provided the basis for their selection (Ritchie et al 2003). The focal organisations were selected from a shortlist of potential organisations representing the private sector, civil society, government and multilateral organisations. The shortlist was compiled with reference to public debate over global food security, with particular attention paid to cross-sector initiatives (e.g. the Alliance for Food Security and Nutrition, the Committee on World Food Security, and the Alliance for a Green Revolution in Africa) as well as their critics. It included the three largest multinational agribusinesses with a strong biotech seed focus (Monsanto, DuPont & Syngenta), and influential biotech industry organisations (the ISAAA, CropLife International, and AfricaBio). Of the many CSOs active in the

public debate over agri-biotech, nine made the initial shortlist (the ACB, Biowatch, FoE, Greenpeace, Global Justice Now, GM Freeze, GM Watch, RAFI, and Navdanya International). Also included were multilateral organisations directly connected with the issue of global food security (e.g. FAO, WTO, WB, UNDP, and OECD), as well as national governments. The completed shortlist consisted of 28 potential actors/organisations for inclusion in the study.

After having conducted a comprehensive search of media databases in order to identify key events for the discursive opportunity analysis[5], it was then possible to refine the shortlist based on how active the actors/organisations had been in the debate surrounding those events. Whilst the original intention was to select several actors/organisations from each category (private sector, CSO, multilateral, and government), it soon became clear that the crux of the framing contest played out between corporations and CSOs. In order to best capture that central discursive struggle, the decision was made to focus the analysis on corporate and CSO actors, bringing multilateral and government actors into the analysis where they naturally arose in the contest.

Having conducted an initial assessment of the shortlisted organisations, and their involvement in the media portrayal of the three key events, two industry organisations and two organisations representing the anti-biotech movement were identified as the focal organisations for the research[6]. The primary selection criteria was that the organisations had been vocal in the debate around agricultural biotechnology since the turn of the millennium, or soon after. After that, organisations were selected on the basis that they had "particular features or characteristics which will enable detailed exploration and understanding of the central themes and puzzles which the researcher wishes to study" (Ritchie et al 2003, p.78). In order to facilitate comparison between the framing strategies of different types of organisation, two quite different organisations were selected within each category. One multinational agribusiness was

[5] This process will be discussed in more detail in the section on data gathering.

[6] Whilst these organisations were chosen as the focal organisations, this did not exclude other organisations from the analysis. With the anti-biotech movement in particular, it proved difficult to separate the framing strategies of one organisation from another. However, these organisations were chose on the basis of their long-term involvement with the issue and their overall suitability, and can be seen as broadly representative of the anti-biotech movement. Of course, this is not to suggest that there is homogeneity or even necessarily agreement within a social movement at any given time.

selected as a direct representation of corporate interests, namely Monsanto. The other industry organisation was chosen as an indirect representation of corporate interests, namely the International Service for the Acquisition of Agri-biotech Applications (ISAAA). Two CSOs were selected to represent the anti-biotech movement, chosen specifically for their resistance to corporate control of world food systems. The first was Friends of the Earth, chosen on the strength of its international presence and the frequency and veracity of its engagement on the issue of agricultural biotechnology. The second was the African Centre for Biodiversity, chosen again for the strength and regularity of its engagement, but also for its regional focus. The ACB is an issue-specific organisation focusing solely on food and agriculture, providing a contrast with Friends of the Earth which has a broader remit as an environmental advocacy organisation.

It is important to acknowledge that selecting different organisations may have yielded data that would lead to different interpretations. It must be acknowledged, for example, that "civil society does not speak with one voice" (Fontoura et al 2016, p.435), and that other CSOs might take a less anti-corporate line, perhaps even advocating the involvement of corporate actors in addressing food insecurity through such initiatives as public private partnerships. Whilst the organisations were chosen on the basis that they were broadly representative of different organisational types, there are doubtless differences between the communication strategies of organisations within these types. The researcher's perspective on what constitutes a representative organisation may not equate to that of another scholar. However, this neither compromises the quality of the research nor undermines the value of its findings. Rather, the research offers certain kinds of insight which can contribute to a broader understanding of the issues and concepts at hand.

Monsanto

As the front-runner in agricultural biotechnology since the first commercial planting of its herbicide resistant crops, Monsanto needs little introduction. A key player in the development of genetic engineering technologies, and having long dominated the market for GE seeds and other agricultural inputs including its ubiquitous range of *Roundup* herbicides, the company is very much the face of agricultural biotechnology. Monsanto has been at the centre of many controversies, including numerous legal battles over intellectual property rights and the contamination of non-GM crops, allegations of significant health risks associated with its chemical inputs, and exposés

indicating powerful and subversive lobbying activities. Its visibility has made Monsanto the most obvious target for the anti-biotech movement. Indeed, the company has been the direct target of significant anti-biotech action including the annual 'March against Monsanto' and the recent (2016/17) symbolic 'International Monsanto Tribunal' which took place in The Hague and involved five judges delivering their legal opinions on alleged violations of human rights law. Given that it has played such a key role in the development and diffusion of agricultural biotechnology over the last three decades, and has been so central to public debate around the issue, Monsanto was an obvious choice for inclusion in the research.

ISAAA

The ISAAA is described as "a not-for-profit international organization that shares the benefits of crop biotechnology to various stakeholders, particularly resource-poor farmers in developing countries" (ISAAA 2018). Formed in 1991, the organisation describes its mission as "sharing and disseminating scientific knowledge to the global community" and "facilitating the transfer of technologies to developing countries" in order to contribute to "world efforts to help achieve agricultural sustainability and development" (ISAAA 2018). The organisation's donors include Monsanto, the USDA, and CropLife International (whose members include all of the big multinational agribusinesses including Bayer, BASF and Syngenta). In this sense, the ISAAA can be considered a strongly pro-biotech voice which is influenced, probably to a high degree, by corporate interests. This indirect insight into corporate interests through a mouthpiece organisation was one of the reasons for the ISAAA's selection. The ISAAA also targets its services at important areas of influence, including "capacity-building for policy makers and scientists", "regulatory oversight", "impact assessment, and science communication" (ISAAA 2018). The organisation regularly conducts, commissions, and publishes reports on agricultural biotechnology which aim to influence a range of audiences including policy makers and the public. Previous literature has emphasised the problematic role of industry-funded research in promoting particular development trajectories and "narrowing the definition of the public good towards private goods" (Vanloqueren & Baret 2009, p.976). The ISAAA's communications are therefore of significant strategic importance to the pro-biotech dimension of the public debate over agricultural biotechnology.

Friends of the Earth

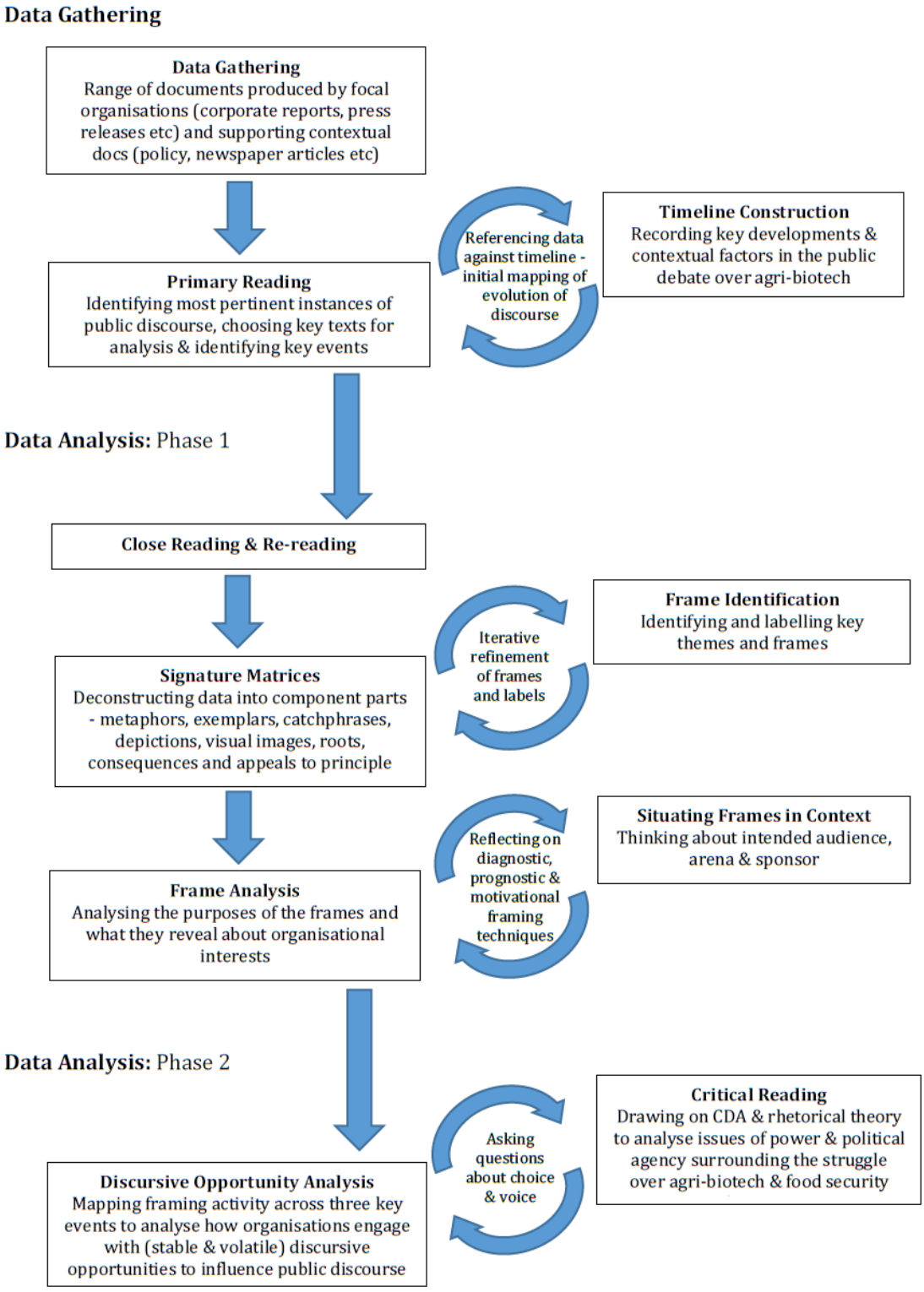
Friends of the Earth is an environmental CSO with a strong international presence. The organisation describes itself as "the world's largest grassroots environmental network" with 75 national member groups, around 5,000 local activist groups, and over 2 million members and supporters worldwide (FoE 2018). The organisation has campaigned on many issues since its beginnings in the early 1970s, including industrial pollution, deforestation, recycling, animal welfare, and energy conservation. Friends of the Earth has been vocal on the issue of agricultural biotechnology for many years, with a noticeable increase in engagement beginning around the turn of the millennium. In 2004 it published a report entitled *Genetically Modified Crops: A Decade of Failure [1994-2004],* which has been followed up with not-quite-annual reports on agricultural biotechnology entitled *Who Benefits?,* each with a slightly different issue focus. The CSO describes its remit as to "challenge the current model of economic and corporate globalization, and promote solutions that will help to create environmentally sustainable and socially just societies" (FoE 2018). This determination to challenge hegemonic economic and corporate structures and modes of development has made Friends of the Earth a key player in the public issue framing contest over agricultural biotechnology and food security.

African Centre for Biodiversity

The ABC (formerly The African Centre for Biosafety) describes itself as a "research and advocacy organisation working towards food sovereignty and agro-ecology in Africa" (ACB 2018). The CSO differs from Friends of the Earth in that it solely engages with issues relating to food and agriculture, specifically biosafety, seed systems, and agricultural biodiversity. Though the organisation is focused on Southern and Eastern Africa, it is deeply embedded in global and continental networks, and seeks to "amplify the voices of social movements fighting for food sovereignty in Africa" (ACB 2018). In this sense, the ACB bridges global, regional and local levels of engagement, bringing a slightly different perspective to the debate than that of Friends of the Earth. As a smaller regional organisation, it also has a different (though overlapping) set of competencies and is subject to different constraints. Much of the ACB's work has been research-based, publishing technical reports aimed at challenging and reforming biosafety, food and agriculture policy. However, similarly to its anti-biotech counterpart, the ACB is "committed to dismantling inequalities and resisting corporate-

industrial expansion in Africa's food and agriculture systems", and has played an active role in speaking out against agricultural biotechnology for many years (ACB 2018).

Figure 3. Overview of Data Gathering & Analysis Procedures



Data Gathering & Analysis Procedures

Figure 3 provides a visual overview of the different stages of the data gathering and analysis process. Though this was, in reality, a messier process than the figure might suggest, it serves to paint a broad picture of how the analysis was planned and pursued.

Data Gathering

Although discourses "exist beyond the individual texts that compose them", they are "*embodied* and *enacted* in a variety of texts" (Phillips & Hardy 2002, p.4 – emphasis added). In this sense, individual texts can be conceived of as 'discursive units' through which discourse is made manifest (Chalaby 1996). A range of such 'discursive units' produced by the four focal organisations formed the main body of data, including organisational reports, research briefs, press releases, and position statements. These were mainly gathered from the organisations' own online archives, though some missing documents had to be tracked down elsewhere[7]. Further documents provided important context and aided the construction of a comprehensive timeline of events relating to agricultural biotechnology and food security. These included policy documents, multilateral reports, websites and newspaper articles, and were gathered through targeted online searches using Google search engine and Nexis news database[8].

When producing the body of research materials, it was important to think about how to compile a manageable number of documents given the scope and timescale of the research (Rapley 2007). Numerous documents relating to agricultural biotechnology have been produced since the commericalisation of the first GM crop. The fact that the texts were available online in many ways facilitated the data gathering process. However, it took some time to establish and refine effective search terms, and to hone the interpretive skills required to differentiate between useless and useful documents (Bryman & Bell 2011). A discourse analytical approach affords a level of freedom and

[7] For example, there were several annual reports missing from Monsanto's online archive. These were found elsewhere, with the exception of the 2010 report which was unattainable.

[8] These contextual documents are listed under 'other sources' in the references section.

creativity in this process and would have been undermined by an overly systematic or mechanical approach. However, that creativity had to be carefully balanced with a regard for academic rigor (Phillips & Hardy 2002). Adopting a methodical approach to gathering data, keeping a clear record of data sources, and maintaining up-to-date notes all helped to keep the process on track.

Running parallel to the process of data collection, the timeline was also under construction. Whilst gathering data, key contextual developments relevant to the public debate over agricultural biotechnology and food security discourse were simultaneously recorded. At this stage a primary reading was conducted in order to identify the most useful texts and the most pertinent instances of discourse in action, helping to refine the corpus of data to a more manageable volume. This also presented a good opportunity for the researcher to get a feel for the data and the nature of the discursive struggle taking place. The data was then referenced against the timeline in order to provide a preliminary mapping of the evolution of public agri-biotech discourse. This enabled the researcher to identify three key events that had occurred in the debate around agricultural biotechnology:

i) controversy surrounding the development and potential commercialisation of sterile seed technology;
ii) distribution of GM food aid in response to various food crises and its subsequent rejection by several nations;
iii) a dramatic spike in food prices culminating in the world food crisis of 2008.

These events were selected as the basis for discursive opportunity analysis on the grounds that they attracted significant public attention and wide media coverage. They were events that were pivotal to public perception of agricultural biotechnology, as well as to policy developments, and therefore to the future of agri-biotech as a potential response to the issue of global food security. Specifically, they were conceived of as discursive events which gave rise to volatile discursive opportunities in that they opened up new (but limited and potentially unpredictable) cultural and institutional access points for competing organisations to frame agricultural biotechnology in particular ways. These volatile discursive opportunities overlapped with existing stable opportunities presented by long-lived and deeply embedded discourse (McCammon et al 2007).

Having identified these key events it was then possible to refine the large corpus of data down to a manageable volume, focusing attention on organisational discourse leading up to, during, and after their occurrence. The selection criteria for texts to be carried forward to the next stage of analysis were as follows:

- *Deals directly with agricultural biotechnology*
  Documents which made only passing reference to agricultural biotechnology and were therefore of limited relevance to the analysis were removed at this stage.

- *Makes clear links to the issue of global food security*
  Some texts spoke directly to the issue of global food security whilst others made more implicit links. This meant that the researcher had to use some discretion in deciding whether a sufficiently clear link was evident for a text to be taken forward to the next stage of analysis.

- *External communication*
  Focusing on public organisational discourse, the analysis required texts to be designed for an audience external to the organisation such as consumers or policy makers. Internal organisational documents were not considered.

- *Published between 1996 and 2016*
  The focus of the analysis was on the three key events and therefore fell between 1998 and 2010. However, selecting documents from a wider time frame allowed the researcher to maintain awareness of contextual and discursive developments occurring before, between, and after these events and therefore to paint a more complete picture of the evolution of public food security discourse over time.

- *Richness of data*
  Texts were selected on the strength of their capacity to add richness to the analysis. This meant that documents which largely repeated the content of other texts, and overtly technical documents with little to add to the discursive analysis, were excluded at this stage.

Having completed the selection process, a corpus of 177 organisational documents were taken forward to the first stage of analysis.

Table 2: Summary of Organisational Documents Analysed

	Organisation (Year of Publication)	Document Title	Document Type
1.	ACB (2001)	South Africa: GMO Legislation	Policy Brief
2.	ACB (2004)	African Agriculture Under Genetic Engineering Onslaught	Press Release
3.	ACB (2005)	A Glimpse through the Cracks in the Door: South Africa's Permitting System for GMOs	Briefing Paper
4.	ACB (2006)	Monsanto and Genetic Modification in South Africa: Facts for South African Consumers	Fact Sheet
5.	ACB (2006)	Contaminated US Rice Must be Recalled from Africa	Press Release
6.	ACB (2006)	Why do we Need to Label Genetically Modified Food Products? Facts for South African Consumers	Fact Sheet
7.	ACB (2007)	GMOs in Africa: Food and Agriculture Status Report 2007	CSO Report
8.	ACB (2007)	Monsanto's 'Seeds of Hope' Campaign in South Africa	Briefing Paper
9.	ACB (2007)	Monsanto's Genetically Modified Drought Tolerant Maize in South Africa	Briefing Paper
10.	ACB (2007)	Tainting Africa's Heritage: Wambugu, Gates Foundation and Dupont's GM Sorghum Project	Briefing Paper
11.	ACB (2007)	The New Green Revolution in Africa: Trojan Horse for GMOs?	Conference Paper
12.	ACB (2007)	The UCT/Pannar Genetically Engineered Maize Resistant to Maize Streak Virus	Briefing Paper
13.	ACB (2008)	Displacing Africa's Indigenous Food: Monsanto and AATF's GM Cowpea Project	Briefing Paper
14.	ACB (2008)	GMO Trials in South Africa in 2007: Who is Doing What and Where?	Briefing Paper
15.	ACB (2008)	GMOs in South Africa: 2008 Overview	CSO Report
16.	ACB (2009)	Africa's Green Revolution Rolls out the Gene Revolution	Briefing Paper
17.	ACB (2009)	Biotechnology, Seed and Agrochemicals: Global and South African Industry Structure and Trends	Information Booklet
18.	ACB (2009)	GM Climate Craze Seizes African Food	Press Release
19.	ACB (2009)	Genes from Africa: The Colonisation of Human DNA	Briefing Paper
20.	ACB (2009)	On-going Concerns About Harmonisation of Biosafety Regulations in Africa	Briefing Paper
21.	ACB (2009)	Patents, Climate Change and African Agriculture: Dire Predictions	Briefing Paper
22.	ACB (2009)	Pirating African Heritage: The Pillaging Continues	Briefing Paper
23.	ACB (2009)	The Revised African Model Law on Biosafety and the African Biosafety Strategy	Briefing Paper
24.	ACB (2010)	A Good neighbour? South Africa forcing GM maize onto African markets and policy makers	Briefing Paper
25.	ACB (2010)	The Gates Foundation and Cargill Push Soya onto Africa	Press Release
26.	ACB (2010)	Africa's Green Revolution Drought Tolerant Maize Scam	Briefing Paper
27.	ACB (2010)	GM Sorghum: Africa's Golden Rice	Briefing Paper
28.	ACB (2010)	Stacked Gene Revolution	CSO Report
29.	ACB (2011)	An Introduction to GM Seeds: Why they're so Different to What We Know	Fact Sheet
30.	ACB (2011)	Heavy Hands: Monsanto's Control in South Africa	CSO Report
31.	ACB (2011)	Understanding the Impact of Genetically Modified Crops in Africa: An Activist's Handbook	Handbook
32.	ACB (2011)	Water Efficient Maize for Africa: Pushing GMO Crops onto Africa	CSO Report
33.	ACB (2011)	What You Should Know About GM Crops	Fact Sheet
34.	ACB (2011)	Label GM Food: Our Right to Know	Press Release
35.	ACB (2012)	Harmonisation of Africa's Seed Laws: A Recipe for	CSO Report

		Disaster	
36.	ACB (2012)	Hazardous Harvest: Genetically Modified Crops in South Africa 2008-2012	CSO Report
37.	ACB (2012)	South Africa's Seed Systems: Challenges for Food Sovereignty	CSO Report
38.	ACB (2012)	African Civil Society Calls on African Union to Ban Genetically Modified Crops	Press Release
39.	ACB (2013)	Africa Bullied to Grow Defective Bt Maize: The Failure of Monsanto's MON810 Maize in South Africa	CSO Report
40.	ACB (2014)	Running to Stand Still: Small-scale Farmers and the Green Revolution in Malawi	CSO Report
41.	ACB (2015)	GM and Seed Industry Eye Africa's Lucrative Cowpea Seed Markets	CSO Report
42.	ACB (2015)	Nuanced Rhetoric and the Path to Poverty: AGRA, Small-scale Farmers, and Seed and Soil Fertility in Tanzania	CSO Report
43.	ACB (2016)	"For Your Own Good!" The Chicanery Behind GM Non-Commercial 'orphan crops' and Rice for Africa	CSO Report
44.	ACB, EarthLife, ERA, GRAIN & SafeAge (2004)	GM Food Aid: Africa Denied Choice Once Again?	CSO Report
45.	FoE (2001)	Liability for GMO Contamination Needed Now to Ensure Biosafety	Press Release
46.	FoE (2001)	'Stop Contaminated US Corn Exports' More than 100 Groups Worldwide Say to President Bush	Press Release
47.	FoE (2001)	US and Biotech Corporations Impose Genetically Modified Organisms Worldwide Under WTO Threats	Press Release
48.	FoE (2002)	GMO Food Aid: Helping the Poor or Destroying Livelihoods?	Press Release
49.	FoE (2002)	Food and Farming: Time to Choose	Press Release
50.	FoE (2003)	Playing with Hunger: The Reality Behind the Shipment of GMOs as Food Aid	CSO Report
51.	FoE (2003)	UN Treaty Regulating Biotech Crops to become Law	Press Release
52.	FoE (2003)	US Secretary of Agriculture Told to Stop Using Hunger to Promote Genetically Modified Crops	Press Release
53.	FoE (2004)	Genetically Modified Crops: A Decade of Failure	CSO Report
54.	FoE (2004)	How the US Government is Planning to Approve Contamination of the World's Food Supply with Experimental GM Crops	Briefing Paper
55.	FoE (2005)	New Report Shows Contamination Risk to Food and Crops as International Talks Begin	Press Release
56.	FoE (2005)	Africa at Risk of Invasion from Genetically Modified Crops	Press Release
57.	FoE (2006)	Environmentalists Demand an Immediate Stop to GMO Authorisations	Press Release
58.	FoE (2006)	Who Benefits from GM Crops? Monsanto and the Corporate-driven Genetically Modified Crop Revolution	CSO Report
59.	FoE (2006)	Biotech Food: David Versus Goliath	Press Release
60.	FoE (2008)	The Only Responsible Soy is Less Soy	Press Release
61.	FoE (2008)	Who Benefits from GM Crops? The Rise in Pesticide Use	CSO Report
62.	FoE (2009)	Who Benefits from GM Crops? Feeding the Biotech Giants, Not the World's Poor	CSO Report
63.	FoE (2009)	A Welcome Shift in UN View on Food Sovereignty	Press Release
64.	FoE (2009)	GM Crops Feed Biotech Giants Only	Press Release
65.	FoE (2009)	We Can Feed the Planet and Save the World	Press Release
66.	FoE (2010)	Who Benefits from GM Crops? The Great Climate Change Swindle	CSO Report
67.	FoE (2011)	For the Land that Feeds Us: Struggles and Achievements in Building Food Sovereignty and Local Diversity	CSO Report
68.	FoE (2011)	Who Benefits from GM Crops? An industry built on	CSO Report

		myths	
69.	FoE (2011)	Women and Food Sovereignty: Voices of Rural Women of the South	CSO Report
70.	FoE (2012)	A Wolf in Sheep's Clothing	CSO Report
71.	FoE (2012)	AGRA's Technology Push in Africa	Commentary
72.	FoE (2012)	Nature is Not for Sale	Information Booklet
73.	FoE (2014)	Retaining Community Sovereignty Over Land	Community Guide
74.	FoE (2014)	Who Benefits from GM Crops? An Industry Built on Myths	CSO Report
75.	FoE (2015)	Who Benefits from GM Crops? The Expansion of Agribusiness Interests in Africa through Biosafety Policy	CSO Report
76.	FoE (2016)	Getting into a Bind	CSO Report
77.	FoE & La Via Campesina (2009)	Food Sovereignty: A New Model for a Human Right	CSO Report
78.	FoE, La Via Campesina & Combat Monsanto (2012)	Combatting Monsanto	CSO Report
79.	FoE, La Via Campesina & other CSOs (2009)	Statement to the International Treaty on Plant Genetic Resources for Food and Agriculture	Civil Society Statement
80.	ISAAA (1996)	Global Review of the Field Testing and Commercialization of Transgenic Plants: 1986 to 1995: The First Decade of Crop Biotechnology	Research Brief
81.	ISAAA (1996)	Insect Resistance in Crops: A Case Study of Bacillus thuringiensis (Bt) and its Transfer to Developing Countries	Research Brief
82.	ISAAA (1997)	Global Status of Transgenic Crops in 1997	Research Brief
83.	ISAAA (1997)	Progressing Public-Private Sector Partnerships in International Agricultural Research and Development	Research Brief
84.	ISAAA (1997)	The Role of Intellectual Property Rights in Biotechnology Transfer under the Convention on Biological Diversity	Research Brief
85.	ISAAA (1998)	Global Review of Commercialized Transgenic Crops: 1998	Research Brief
86.	ISAAA (1998)	The Importance of Ag-biotech to Global Prosperity	Keynote Address
87.	ISAAA (1999)	Global Status of Commercialized Transgenic Crops: 1999	Status Report
88.	ISAAA (2000)	An Overview of ISAAA from 1992 to 2000	Research Brief
89.	ISAAA (2000)	Connecting People to the Promise of Biotech	Research Brief
90.	ISAAA (2000)	Food Biotechnology: European and North American Regulatory Approaches and Public Acceptance	Research Brief
91.	ISAAA (2000)	Global Review of Commercialized Transgenic Crops: 2000	Research Brief
92.	ISAAA (2001)	Global Status of Commercialized Transgenic Crops: 2001	Research Brief
93.	ISAAA (2002)	Global Status of Commercialized Transgenic Crops: 2002	Research Brief
94.	ISAAA (2002)	Poverty & Technology: Strategic Plan 2001-2005	Strategy Brief
95.	ISAAA (2003)	Global Status of Commercialized Transgenic Crops: 2003	Research Brief
96.	ISAAA (2003)	GM Rice: Will This Lead the Way for Global Acceptance of GM Crop Technology?	Research Brief
97.	ISAAA (2004)	Global Status of Commercialized Biotech/GM Crops: 2004	Research Brief
98.	ISAAA (2004)	Telling Transgenic Technology Tales: Lessons from the Agricultural Biotechnology Support Project Experience	Research Brief
99.	ISAAA (2005)	Global Status of Commercialized Biotech/GM Crops:	Research Brief

		2005	
100.	ISAAA (2006)	Genes are Gems: Reporting Agri-Biotechnology	Sourcebook for Journalists
101.	ISAAA (2006)	Global Status of Commercialized Biotech/GM Crops: 2006	Research Brief
102.	ISAAA (2006)	GM Crops: The First Ten Years - Global Socio-Economic and Environmental Impacts	Research Brief
103.	ISAAA (2007)	Global Status of Commercialized Biotech/GM Crops: 2007	Status Report
104.	ISAAA (2008)	Bridging the Knowledge Divide: Experiences in Communicating Crop Biotechnology	Industry Report
105.	ISAAA (2008)	Global Status of Commercialized Biotech/GM Crops: 2008	Research Brief
106.	ISAAA (2008)	GMOs and Exports: Demystifying Concerns in Africa	Policy Brief
107.	ISAAA (2008)	Trust in the Seed	Research Brief
108.	ISAAA (2009)	Biotech Crops in Africa: The Final Frontier	Research Brief
109.	ISAAA (2009)	Communicating Crop Biotechnology: Stories from Stakeholders	Research Brief
110.	ISAAA (2009)	Global Status of Commercialized Biotech/GM Crops: 2009	Research Brief
111.	ISAAA (2010)	Developing a Biosafety Law: Lessons from the Kenyan Experience	Industry Report
112.	ISAAA (2010)	Global Status of Commercialized Biotech/GM Crops: 2010	Research Brief
113.	ISAAA (2011)	Communicating Agricultural Biotechnology in Africa: What Role for Radio?	Research Brief
114.	ISAAA (2011)	Global Status of Commercialized Biotech/GM Crops: 2011	Research Brief
115.	ISAAA (2011)	Science and Popular Media: How Cartoonists Visualize Crop Biotechnology	Communication Brief
116.	ISAAA (2012)	Biotech Quiz Book	Kids booklet
117.	ISAAA (2012)	Global Status of Commercialized Biotech/GM Crops: 2012	Research Brief
118.	ISAAA (2012)	Mandy and Fanny: The Future of Sustainable Agriculture	Cartoon
119.	ISAAA (2013)	Farmers First: Feedback from the Farm	Communication Brief
120.	ISAAA (2013)	From Monologue to Stakeholder Engagement: The Evolution of Biotech Communication	Research Brief
121.	ISAAA (2013)	Global Status of Commercialized Biotech/GM Crops: 2013	Research Brief
122.	ISAAA (2014)	Adoption and Uptake Pathways of GM/Biotech Crops by Small-Scale, Resource-Poor Farmers	Research Brief
123.	ISAAA (2014)	Agricultural Biotechnology (A Lot More Than Just GM Crops)	Information Series
124.	ISAAA (2014)	Global Status of Commercialized Biotech/GM Crops: 2014	Research Brief
125.	ISAAA (2014)	Straight from the Scientists: Biotech Experts' Perspectives and Experiences in Informing the Public	Communication Brief
126.	ISAAA (2015)	20th Anniversary (1996 to 2015) of the Global Commercialization of Biotech Crops and Biotech Crop Highlights in 2015	Research Brief
127.	ISAAA (2015)	50 Biotech Bites	Information Series
128.	ISAAA (2015)	Global Status of Commercialized Biotech/GM Crops: 2015	Research Brief
129.	ISAAA (2015)	Myths and Facts About Agricultural Biotechnology	Biotech Booklet
130.	ISAAA (2015)	Quotable Quotes: Why Biotech?	Communication Brief
131.	ISAAA (2015)	Voices and Views: Why Biotech?	Research Brief
132.	ISAAA (2016)	Biotech Quiz Book	Kids booklet
133.	ISAAA (2016)	Global Status of Commercialized Biotech/GM Crops: 2016	Research Brief
134.	Monsanto (1997)	Monsanto Reiterates Commitment to Farmers and	Press Release

		Roundup Ready Technology	
135.	Monsanto (1998)	Transformation towards Sustainability: The Monsanto Experience	Conference Presentation
136.	Monsanto (2000)	Apologia	CEO Speech
137.	Monsanto (2000)	Monsanto Adds Support for 'Golden Rice'	Press Release
138.	Monsanto (2001)	2001 Annual Report	Corporate Report
139.	Monsanto (2001)	Monsanto Welcomes UN Report on Biotech's Benefits for Developing World	Press Release
140.	Monsanto (2002)	2002 Annual Report	Corporate Report
141.	Monsanto (2002)	Biotechnology A Tool to Help Improve the Quality of Life for Women	Press Release
142.	Monsanto (2002)	Biotechnology can Improve Quality of Food for both Developed and Developing World	Press Release
143.	Monsanto (2003)	2003 Annual Report: A Clear Focus	Corporate Report
144.	Monsanto (2003)	Monsanto Donates Research to Help Develop Pro-Vitamin A Enhanced Maize for Africa'	Press Release
145.	Monsanto (2004)	2004 Annual Report: Setting the Standard in the Field	Corporate Report
146.	Monsanto (2005)	2005 Annual Report	Corporate Report
147.	Monsanto (2006)	2006 Annual Report: It All Starts Today	Corporate Report
148.	Monsanto (2006)	The Sum of Our Commitments: '06 Pledge Report	Corporate Report
149.	Monsanto (2007)	2007 Annual Report: Growing	Corporate Report
150.	Monsanto (2007)	India Annual Report 06-07	Corporate Report
151.	Monsanto (2008)	World Food Prize Receives $5 Million Pledge from Monsanto to Honour Norman Borlaug	Press Release
152.	Monsanto (2008)	2008 Annual Report: Yield	Corporate Report
153.	Monsanto (2008)	Monsanto Scientists Step Closer to Unlocking Greater Yield Potential of Corn	Press Release
154.	Monsanto (2008)	Monsanto Will Undertake Three-Point Commitment to Double Yield in Three Major Crops	Press Release
155.	Monsanto (2008)	Annual Report 07-08	Corporate Report
156.	Monsanto (2009)	2009 Annual Report	Corporate Report
157.	Monsanto (2009)	Corporate Responsibility & Sustainability Report (08/09) "Growth for the Future"	Corporate Report
158.	Monsanto (2009)	Corporate Responsibility and Sustainability Report 2008-2009: Grown for the Future	Corporate Report
159.	Monsanto (2009)	India Annual Report 08-09	Corporate Report
160.	Monsanto (2009)	Monsanto Takes Major Step Towards Launch of World's First Drought-Tolerant Corn	Press Release
161.	Monsanto (2010)	India Annual Report 09-10	Corporate Report
162.	Monsanto (2010)	Increasing 'Crop Per Drop' Critical says Monsanto's Fraley	Press Release
163.	Monsanto (2011)	2011 Annual Report: Leading in Innovation	Corporate Report
164.	Monsanto (2011)	India Annual Report 10-11	Corporate Report
165.	Monsanto (2012)	2012 Annual Report	Corporate Report
166.	Monsanto (2012)	2012 Sustainability Report	Corporate Report
167.	Monsanto (2012)	India Annual Report 11-12	Corporate Report
168.	Monsanto (2013)	2013 Annual Report	Corporate Report
169.	Monsanto (2013)	2013 Fall Sustainability Report	Corporate Report
170.	Monsanto (2013)	Spring 2013 Progress Report	Corporate Report
171.	Monsanto (2013)	India Annual Report 12-13	Corporate Report
172.	Monsanto (2014)	2014 Annual Report	Corporate Report
173.	Monsanto (2014)	2014 Sustainability Report: From the Inside Out	Corporate Report
174.	Monsanto (2015)	2015 Annual Report	Corporate Report
175.	Monsanto (2015)	2015 Sustainability Report	Corporate Report
176.	Monsanto (2016)	2016 Annual Report	Corporate Report
177.	Monsanto (2016)	2016 Sustainability Report: Growing Better Together	Corporate Report

Data Analysis

There is great diversity in the range of traditions engaging with discourse analysis, such as critical linguistics, discursive psychology, conversation analysis, and interactive linguistics. The types of data under consideration are therefore numerous, including interviews, naturally occurring conversations, political speeches, cartoons, newspaper articles, and novels to name just a few (Phillips & Hardy 2002). Consequently, researchers doing discourse analysis take a variety of different approaches to coding and analysing their data. Some scholars choose to use content analysis as a tool to facilitate their discourse analysis, sacrificing the method's traditionally positivist objectives and using it in a more interpretive way (Hardy et al 2004). For example, in their exploration of the discourse of globalisation, Fiss and Hirsch "used computerized content analysis to detect the occurrence of frame key words" before cross-checking these among the texts and creating coded categories (2005, p.34). Whilst this kind of content analytical approach has its own merits, its emphasis on the *frequency of occurrence* of key words and phrases situates them outside the philosophical boundaries of this research. Of greater concern here is the *intended function* of the linguistic features of discourse, and the *interaction* between texts displaying those features and higher orders of discourse.

The first step for many researchers adopting a discourse analytical approach involves a close reading of the texts during which interesting or recurrent themes and ideas can be identified and recorded (Gee 2011; Rapley 2007). As themes are identified, categories and labels are refined through an iterative process involving systematic, interpretive re-readings of the texts (Barros 2014; Livesey 2002; Maguire & Hardy 2006). Depending on the research agenda, this may lead into any number of further analytic phases. This research project took a similar approach, beginning by identifying key themes and categories. The first phase of analysis used the signature matrix as an organising tool, allowing the texts to be deconstructed into their component elements. Important features were identified, including metaphors, exemplars, catchphrases, depictions, visual images, roots, consequences and appeals to principle (Gamson & Lasch 1981). Multiple signature matrices were required as each document included several different idea packages which couldn't be adequately captured under one frame label. Dahan and Gittens note that this is "bound to be an iterative process, as idea packages may gradually be merged or broken down into subsets" (2010, p.232). Indeed, it took time to understand what ideas and themes were holding the different

elements of a package together and to find labels which adequately accounted for "the essence of each idea package" (Creed et al 2002a, p.40). It was initially difficult to know where to draw frame boundaries, particularly where there were thematic overlaps between complementary frames. It was tempting to try to 'tidy up' the data and make it fit comfortably into coherent frames, and in doing so to compromise their 'narrative fidelity' (Creed et al 2002a, p.45). However, through an ongoing process of re-reading, shuffling, and relabelling, eleven frames which felt true to the data eventually crystallised. Later on, when it became clear that there was significant conceptual overlap between several of these, four frames were merged into two, resulting in nine frames in total; five in favour of agri-biotech and four against.

The next step of the first phase of analysis involved analysing the purpose of the frames that had been identified, and what this reveals about the interests of their organisational sponsors. This involved identifying their diagnostic, prognostic and motivational components (Benford & Snow 2000), and analysing how these features attribute responsibility for the issue of food insecurity and articulate responses to it that reflect particular motives and agendas (Dahan & Gittens 2010). Creed et al (2002a) note the importance of situating frames in context, a practice which is central to CDA as well as to frame analysis. This involved thinking about the intended audience of the different texts under analysis, the arenas in which they were aired, and their main sponsors. It also required particular attention to changes in communication practices over time. For example, whilst shareholders and customers had been the primary audience of Monsanto's earlier corporate reports, they began to have a much more public orientation from the early 2000s onwards, and were more widely circulated in a popular online format. This inevitably changed the nature and content of the reports, and reflected a change in the company's broader communications strategy. Tracking these kinds of changes and thinking about the motivations and imperatives behind them brought further insight into both the strategic dynamics and power dynamics at play between the organisations engaged in the public issue framing contest over agricultural biotechnology.

The first phase having identified the core issue frames at play in the debate around agricultural biotechnology, the second phase of analysis set about exploring how these frames were deployed through active framing strategies to influence public discourse around the contested issue of global food security. Specifically, it sought to shed light on how organisations engage with discursive opportunities by responding to critical

elements in the broader discursive environment. The analysis focused on identifying ways in which the organisational framing of agri-biotech around the three key events tapped into dominant discourse, appealing to features of the broader socio-political context that were relatively short-lived and potentially unpredictable (volatile discursive opportunities), as well as to those that were long-lived and well-established (stable discursive opportunities). Mapping the evolution of agri-biotech discourse against events in the broader socio-political context such as changes in policy, the emergence of new technologies, and increasing consolidation in the agri-biotech industry helped to reveal how the different organisations targeted discursive opportunities presented by, for example, powerful cultural symbols and morally-loaded events.

Whilst the first phase of analysis avoided taking an overly critical or evaluative stance, focusing instead on how the texts were constructed (Atkinson & Coffey 2004), the second phase of analysis sought to systematically ground emergent observations in the data, allowing a critical interpretation to develop.

> "An ethical and epistemological imperative of this second move in frame analysis, then, is to move beyond a concern for an accurate representation of the frames in the sense of presenting the frame in a way that exhibits narrative fidelity to the frame sponsor's intentions. This imperative requires us to pierce the veil"
>
> (Creed et al 2002a, p.45)

Guided by principles from the methodological and philosophical tradition of CDA, the second phase of analysis also drew upon rhetorical theory to conduct a critical reading[9]. This involved reflecting on such questions as:

- Whose interests are represented in the discourse?
- Is any information omitted or are any issues left unaddressed?
- What assumptions are made e.g. regarding shared values?
- Are there any contradictions in the discourse, and are they deliberately de-emphasised?
- Are there any voices which are left unheard?

[9] Notes for conducting a critical reading are provided in appendix A

- What are the consequences of the power relations surrounding food security discourse for those who are most vulnerable?
- What are the broader implications of this state of affairs for society?
- How do power differentials affect the political agency of organisations in accessing discursive opportunities to shape the discourse? (e.g. do some organisations have privileged access?)
- How do power differentials influence the kinds of discursive opportunity (i.e. stable/volatile) organisations are willing/able to engage with?

(adapted from Hoffman & Ford 2010)

Asking such questions brought to light some of the power differentials at play in the struggle over food security discourse. Specifically, it began to reveal differences in the relative agency of different organisations in creating and accessing discursive opportunities to influence the outcomes of public issue framing contests.

Reflexivity

Throughout the research process it is important to acknowledge that the way the data is analysed and interpreted will have an impact on the findings. This is particularly relevant given the epistemological stance of the research; the principles of social constructionism apply equally to the work of the researcher as to the research itself and therefore demand a commitment to reflexivity (Phillips & Hardy 2002). Indeed, Rapley acknowledges that there is nothing 'passive' or 'neutral' about the role of the researcher in drawing the data from documentary material (2007, p.9). Consequently, it is important to be careful and consistent throughout the process of data collection and handling so as to ensure a thorough and high-quality analysis. However, regardless of the level of care taken during analysis, there are nonetheless numerous ways of approaching any one research question and interpreting findings. Recognising that interpretation is both a privilege and a responsibility, the research acknowledges that multiple possible interpretations exist (Stake 1995). A pragmatic approach to reflexivity has been adopted, characterised by "consistent efforts to view the subject matter from different angles" in recognition that "there is more than one good way of understanding something" (Alvesson 2003, p.25).

Campbell argues that though common sense naturalistic observation is not "objective, dependable, or unbiased… it is all that we have. It is the only route to knowledge –

noisy, fallible, and biased though it be" (1975, p. 191). Indeed, it is important to acknowledge that bias cannot be altogether avoided (Silverman 2011). As Geertz puts it "what we call our data are really our own constructions of other people's constructions of what they and their compatriots are up to" (1973, p.9). Though objectivity is out of reach, in no way does this diminish the quality and value of the research. It is helpful, rather, to see the data, the analysis, and its interpretation as offering a certain kind of insight which can contribute to a broader understanding of the issues and concepts addressed. In this sense, the researcher's subjectivity can "be transformed from a problem to an opportunity" (Finlay 2002, p.531). Remaining committed to openness and refutation, the research has sought to cultivate a degree of transparency which affords readers and fellow researchers space to come to their own conclusions about the methods adopted and inferences made. Though methodological perfection is unattainable, through reflexivity and methodological transparency the research seeks to remain open to the kind of healthy academic scrutiny and potential replication required to maximise the impact of qualitative research.

Research Ethics

Given that the research utilises publicly available documentary data, there were few ethical concerns to be taken into consideration. The framing contest over agricultural biotechnology has played out in the public domain and received widespread media attention. None of the texts under scrutiny were confidential or sensitive in nature, therefore it was not deemed necessary to undertake any ethical clearance process. Whilst undertaking the research, the main ethical concern seemed to be remaining true to the objective of taking a dialogical approach that would have 'narrative fidelity' to the frame sponsors (Creed et al 2002a, p.41), and that would present and critique the perspectives of different organisations without dismissing one or privileging another.

Research Quality Criteria

Endeavouring to produce research of the highest standard invariably involves considering research quality criteria. These will differ according to the philosophical approach and methodology of the study in question. Referring to qualitative research, Seale emphasises the "difficulty in regulating and constraining an endeavor whose

guiding philosophy often stresses creativity, exploration, conceptual flexibility, and a freedom of spirit" (1999, p.467). Though this is undeniably true, in order for empirical research in the social sciences to have value it must have credibility. Whilst it would be unhelpful to assume that "the quality of qualitative research can be encapsulated a priori within a set of rigid rules… this does not mean that quality criteria do not apply to studies in the so-called qualitative tradition" (Bergman & Coxon 2005, p.2).

Tracy makes a strong case for eight guiding markers of quality in qualitative research which promote best practice whilst allowing "space for dialogue, imagination, growth, and improvisation" (2010, p.837). Rather than being overly prescriptive and stifling creativity, the intention of this kind of tool is to provide a shorthand way of referencing the core values of qualitative research, encouraging the production of credible, systematic, and structured work. The eight markers advocated by Tracy include; a worthy topic, rich rigor, sincerity, credibility, resonance, a significant contribution, ethics, and meaningful coherence. Of these, two have proven particularly useful in seeking to establish and maintain the credibility of the current research. The first of these was rich rigor, which emphasises the importance of being flexible yet precise in approaching the research. Bearing this quality criteria in mind, the researcher was encouraged to constantly reflect upon new angles from which to view the data, striving to find the best position from which to see its nuances and complexities, and the best way to communicate them. The second was resonance, which refers to the "research's ability to meaningfully reverberate and affect an audience", even with "readers who have no direct experience with the topic discussed" (Tracy 2010, p.843). It was perhaps the centrality of the notion of resonance to frame theory that made this such an important consideration for the researcher. In practice, this concern translated into two outcomes. Firstly, a desire to communicate the issue frames identified through the analysis in a way which maintained their own resonance and 'narrative fidelity' for readers of the research (Creed et al 2002a). Secondly, a desire for the research project as a whole to resonate with its readers, telling a story which is meaningful, accessible, and memorable. Working towards these quality criteria both helped to orientate the research and provided motivation to push through challenges in the research process in pursuit of excellence.

Summary

This chapter has presented the methodological approach of the research project, discussing its philosophical underpinnings, detailing the research methods it employs, and providing justifications for each element of the research design. Starting from a broadly constructionist, interpretive foundation, the research takes a critical perspective on the study of organisational discourse, emphasising the ideological significance of discourse and its role in shaping the power relations that structure our society (Hall 2000; Wodak 2001). The research is situated in the context of the public issue framing contest over agricultural biotechnology as it relates to global food security. Drawing upon frame theory, it uses signature matrices as a framework to deconstruct the discourse of key organisations involved in the discursive struggle, identifying the frames they deploy and analysing them to gain insight into organisational interests (Creed et al 2002a; Gamson & Lasch 1981). Mapping how these frames are deployed around three key events as they unfold in the socio-political context then facilitates analysis of how organisations use (stable and volatile) discursive opportunities to promote their preferred interpretations of those events (McCammon et al 2007). The research engages in critical discourse analysis, drawing upon rhetorical theory to conduct critical readings of key texts, reflecting on questions of power and voice (Fairclough 2003b; Hoffman & Ford 2010). In doing so it re-politicises the framing process, reflecting on how the power dynamics at play in the discursive struggle over global food security affect the political agency of organisations with different interests and agendas as they seek to influence the outcomes of this important public issue framing contest.

Framing Agricultural Biotechnology as a Response to the Issue of Global Food Security

Introduction

Taking a political agency perspective, this thesis offers a dynamic view of framing, capturing how frames emerge and develop over time, and providing insight into how issues of power shape the outcomes of public issue framing contests. In doing so, it provides a fuller understanding of how discursive opportunities facilitate and constrain the framing attempts of different organisational actors with diverse and often conflicting interests. The purpose of this first empirical chapter is to introduce the different agri-biotech issue frames presented by organisational actors in response to the issue of food security, identified through analysis of organisational discourse. This will address the following supporting research questions:

> *What agri-biotech issue frames get activated in public food security discourse?*
> *How do organisational interests shape the framing process?*

Answering these questions, the chapter provides the foundation from which to address the central research question in the next chapter, namely:

> *How do organisations use discursive opportunities to contest public issues?*

Whilst the focus in this chapter is on the frames themselves, the following chapter will consider how those frames are deployed. Consequently, the focus will shift from analysis of the frames in their more static form to consider framing in action, and how the power and political agency of frame sponsors shapes their engagement with discursive opportunities to influence public discourse.

The chapter begins by presenting each frame in turn, analysing how they are constructed and what they are designed to achieve. Each frame has diagnostic, prognostic, and motivational characteristics through which they identify the issue at hand and attribute responsibility, suggest solutions or strategies to address it, and elaborate a rationale for corresponding action (Snow & Benford 1988). As well as exploring these characteristics, the analysis considers who the primary frame sponsors are, what context they're 'speaking' in, and who their intended audience is (Creed et al 2002a). The chapter then engages in a deeper level of analysis, exploring some of the links that exist between different frames, and looking beneath the surface to expose

some of their implicit meanings and assumptions (Creed et al 2002a). Although opposing frames clearly sought to achieve different ends, in some cases they adopted similar means to do so. Critical analysis of the resulting explicit frame clashes, implicit frame conflicts, and contested frame elements reveals some of the tensions which characterise the frames' underlying assumptions, shedding light on the interests they are constructed to serve. A summary of the first stage of findings concludes the chapter and sets the scene for the subsequent stage of data analysis as discussed in the next chapter.

Identifying the Frames

The purpose of this section is to introduce each of the frames identified in the primary stage of analysis[10]. Creed et al state that "the goal of frame analysis is understanding how certain idea elements are linked together into packages of meaning, potentially encoded into soundbite-like signifiers that stand for those packages of meaning, and deployed in situated discursive activity" (2002a, p.37). Each frame will be considered in turn, identifying their central idea elements, thinking about how they work together to convey a certain meaning, and how individual signature elements can be utilised to invoke the meaning of the whole package. This will also involve investigating how the frames are constructed to serve particular diagnostic, prognostic, and motivational functions around the issue of agricultural biotechnology, providing insight into the organisational interests of the frame sponsors at work behind them.

The frames identified each have diagnostic, prognostic and motivational features, as demonstrated by the illustrative quotes accompanying each signature matrix. However, the frames were identified as being either predominantly diagnostic or prognostic in their intended purposes. That is, their primary purpose was either to identify the problem and attribute blame in particular ways (diagnostic), or to offer a specific solution or strategy for its resolution (prognostic) (Snow & Benford 1988). This observation provides some insight into how the frames function together, with diagnostic frames often paving the way for the deployment of a complementary prognostic frame, as expressed in figure 4.

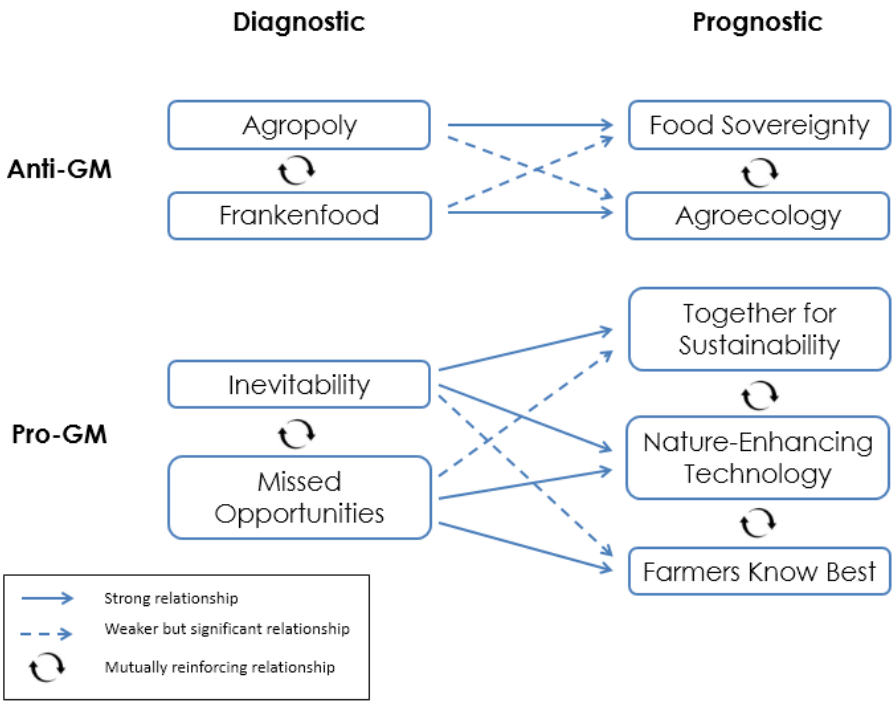
[10] The complete signature matrix for each frame can be found in Appendix B, along with quotes illustrating diagnostic, prognostic, and motivational framing in action.

Table 3. Summary of Core Frames

	Type	Frame	Primary Sponsor(s)	Primary Audience	Primary Arena	Summary
Anti-biotech	Diagnostic	Frankenfood	ACB & FoE	Consumers & Policymakers	Public (Media)	Agri-biotech as a dangerous and irresponsible response to the issue of food security
		Agropoly	ACB & FoE	Policymakers & Int. community	Public & Policy (Media & CSO reports)	Agri-biotech as a controlling and misleading response to the issue of food security
	Prognostic	Agroecology	ACB & FoE	Policymakers & Int. community	Public & Policy (Media & CSO reports)	Agri-biotech as a destructive and inappropriate response to the issue of food security
		Food Sovereignty	ACB & FoE	Policymakers & Int. community	Public & Policy (Media & CSO reports)	Agri-biotech as an unjust and disempowering response to the issue of food security
Pro-biotech	Diagnostic	Inevitability	Monsanto & ISAAA	Investors, policymakers & Int. community	Corporate & Industry reports	Agri-biotech as a necessary and effective response to the issue of food security
		Missed Opportunities	ISAAA	Policymakers & Int. community	Industry reports & policy briefs	Agri-biotech as an under-prioritised response to the issue of food security
	Prognostic	Together for Sustainability	Monsanto	Customers & Int. community	Corporate reports	Agri-biotech as a responsible and environmentally friendly response to the issue of food security
		Nature-Enhancing Technology	Monsanto	Policymakers & Int. community	Corporate & Industry reports	Agri-biotech as a technologically sound and safe response to the issue of food security
		Farmers Know Best	Monsanto & ISAAA	Customers & Policymakers	Corporate & Industry reports	Agri-biotech as an empowering, farmer-friendly response to the issue of food security

Table 3 summarises key aspects of the frames, which are identified as 'core frames' in order to help distinguish their strategic function from 'opportunity frames', which will be discussed in due course. The term 'core frames' refers to the repertoire of frames that an organisation commonly deploys to promote its preferred interpretation of an issue. The key aspects of the frame are detailed and analysed in the subsequent sections. The anti-biotech frames are presented first, with each diagnostic frame discussed before the prognostic frame(s) to which it points. The pro-biotech frames follow, with the same principle guiding their order. The sections are ordered in this way in an effort to capture the relationships between frames, though of course these relationships are in fact more complex than can be conveyed in this manner, overlapping, reinforcing, and challenging one another as they do.

Figure 4. Relationships between Diagnostic & Prognostic Frames



Anti-biotech Core Frames

Frankenfood

The Frankenfood frame is risk-based, depicting agricultural biotechnology as a dangerous and irresponsible response to the issue of food security. Co-constructed and deployed by the ACB and FoE along with a host of other CSOs, the frame was widely

reproduced in the media, particularly during the late 1990s. The frame is predominantly diagnostic in nature, identifying GM crops as a threat to global food security on the grounds that they are unsafe, unpredictable, and are likely to contaminate conventional crops. Not only does agricultural biotechnology pose a risk to world food supplies, it also threatens human health, animal health, and the environment. The frame directly challenges the claims of the biotech industry, particularly regarding the safety and accuracy of the technology:

> "All GM crops begin life in the laboratory. Scientists use a "gene gun" or an infectious bacterium to introduce foreign genes encoding the desired trait(s) into clumps of plant cells. Because genetic modification is a random, hit-or-miss process that scrambles plant DNA, most of these lab experiments are failures. GM plants grown from these modified plant cells often have obvious deformities and are weeded out. But those with more subtle problems are frequently missed, and can end up in the fields for outdoor testing, or even be approved for commercial use"
>
> (FoE 2004a, p.1)

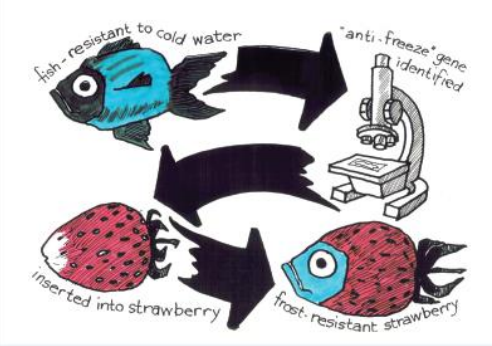
As the frame's title suggests, it adopts the 'Frankenstein' metaphor, which is unpacked in several ways including references to bad science, the perils of playing God, the unforeseen consequences of misguided experimentation, and abnormality or otherness. One frequently referenced example is the issue of 'super weeds' which have grown resistant to herbicides used on GM crops and make farmers dependent on increasingly powerful agro-chemicals. The otherness implied by the Frankenstein metaphor also supports the frame's direct objection to industry claims of substantial equivalence through which it asserts that GM crops are no different from conventional crops in the hope of circumventing regulation.

> "GM is a radical new technology, and GMOs are different from conventional organisms. Although the United States and the biotech industry claim that GMOs are substantially equivalent to their conventional counterparts, they are increasingly isolated in this view"
>
> (FoE 2004b, p.50)

The Frankenfood frame appeals to the precautionary principle on this basis, emphasised through examples of potential unforeseen consequences of insufficient safety testing, including the cases of thalidomide and asbestos. Consumers are

portrayed as unwitting 'guinea-pigs' for the unpredictable experimentations of the biotech industry, often unaware of the GM content in the products they purchase. Visual images are a prominent feature of the Frankenfood frame, often depicting 'unnatural' combinations or 'mutant' foods. These are visually impactful and potentially off-putting to consumers, using the rhetorical device of *pathos* to provoke a sense of fear and disgust from the frame's audience and make them receptive to its claims (Hoffman & Ford 2010).

Figure 5. Images Consistent with the Frankenfood Frame



(ACB 2011a, p.1)



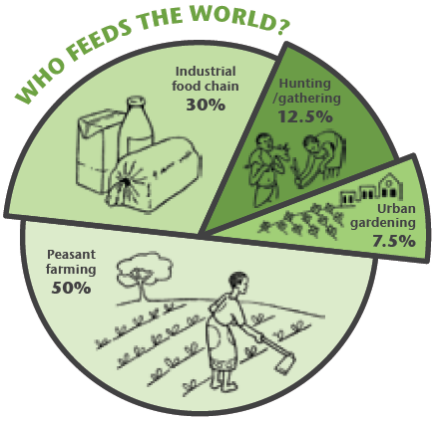
(FoE Europe 2006)

Presenting its diagnosis of agricultural biotechnology as a dangerous and irresponsible undertaking which undermines global food security, focusing on the abnormal and unpredictable nature of GM crops, Frankenfood paves the way for the prognosis of a more natural, agroecological approach to producing food.

Agroecology

Agroecology takes its name from a term coined in the 1920s to describe "a more environmentally and socially sensitive approach to agriculture, one that focuses not only on production, but also on the ecological sustainability of the productive system" (Perković et al 2012, p.3). The term is a key signifier of this enduring and resilient frame, which is used extensively by both ACB and FoE, positioning itself as the polar opposite of industrial agriculture on the spectrum of potential pathways to global food security. The frame is predominantly prognostic in nature, seeking to dispense with the 'myth' that smallholder agriculture and agroecological approaches cannot produce enough food to meet the needs of the world's growing population. This effect is often achieved through reference to the seemingly small proportion of food currently produced by industrial agriculture, as demonstrated in figure 6.

Figure 6. Neutralising the Claim that Industrial Agriculture Feeds the World



(ACB 2011b, p.15)

Furthermore, the frame contests industry claims that biotechnology is a legitimate response to the issue of food security by arguing that industrial agriculture depletes the earth's resources and damages the foundation of biodiversity on which productive agriculture depends. Diversity is a central ideal of this frame, signifying resilience; when climactic conditions change, or when new threats arise, diversity of seed varieties means that those naturally suited to the new conditions can thrive. Reliance upon a few varieties of genetically engineered grain is therefore interpreted as vulnerability due to the lack of ability to adapt, and the reduced number of seed varieties from which to choose in times of struggle. Agroecology therefore implicitly contrasts nature's unique and invaluable ability to adapt and evolve with agricultural biotechnology's destructive tendency to disrupt the natural order of things. The frame is imbued with a sense of awe at the beauty, power and resilience of nature. The seed is a central motif in this frame, taking on an almost sacred standing. The seed's natural intelligence, uniqueness, and adaptability are characteristics often highlighted:

> "Another widely practiced feature of African small-scale farming is seed saving where a portion of the harvested crop is set aside for the next year's planting. Over years, the plants in question gradually adapt to the specific microclimate that these are planted in and unique varieties develop that are able to withstand the environmental and pest pressures exerted on them each year. Saved seed is a resource that the poorest depend on to carry them through the year"
>
> (ACB 2010, p.7)

The agroecological frame celebrates diversity as a quality in itself, deploying images displaying the abundance of colours, shapes and sizes of different seeds, fruits and vegetables. These images work in conjunction with other frame elements, such as the descriptor 'monocrops' which refers to the practice of cultivating the same (usually commoditised) crop year on year without rotation, often on a very large scale. The descriptor is commonly deployed alongside images of vast swathes of land cultivated with a single crop variety, creating a stark contrast between the representation of agroecology as vibrant, diverse and resilient, and agricultural biotechnology as dull and destructive. The catch-phrase of 'one size fits all' neatly describes Agroecology's dismissal of industrial farming, depicting the biotech industry as ignorant of nature's inherent worth and complexity. This representation is supported by several recurrent exemplars, including references to the number of seed varieties lost since the dawn of industrial agriculture, and stories of GM contamination that purportedly threaten the integrity of natural varieties and organic farming techniques.

Agropoly

The Agropoly frame is a prominent feature of the anti-biotech movement's communication strategy, deployed regularly by both the ACB and FoE. The central argument of the frame is that multinational agribusinesses are seizing control of the global food supply, accumulating an unacceptable level of power through acquisitions and megamergers, and exerting considerable influence over industry regulators and political decision-makers. The frame is therefore predominantly diagnostic in nature, attributing responsibility for the problem of global food insecurity to the private interests accumulating this power, and the political actors failing to adequately regulate them. The organisational actors deploying the frame therefore tend to be somewhat anti-establishment, expressing scepticism about the integrity of neo-liberal market-based approaches to issues of social justice. Agropoly paints a picture of an industry built on a complex system of deception and misinformation, from misdiagnosis of the issue of food insecurity right through to misleading statistics about the prevalence and efficacy of agricultural biotechnology. The frame highlights the risks associated with corporate control of world food systems, particularly through GM seed patents, using a series of metaphors, catch-phrases and exemplars which collectively emphasise the catastrophic consequences of letting the status quo go unchallenged.

The term 'agropoly' is a key signifier for this frame. This portmanteau effectively blends the words 'agriculture' and 'monopoly' to create a powerful metaphor which embodies the frame's core theme of control. Anti-biotech communications often refer to the activities of multinational agribusinesses as a form of 'corporate colonialism', particularly referencing the alleged re-colonisation of Africa through the spread of agricultural biotechnology. The metaphor regularly appears hand in hand with claims that seed patents and technology agreements create a high degree of dependency among farmers who, once in the system, are committed to buying new seed each year and purchasing expensive inputs. The ACB, for example, claim that the South African government's decision to issue a permit for the commercial release of Monsanto's MON810 GM maize "opened the door for Monsanto to colonise the production of our staple food through aggressive acquisitions in the South African seed industry and patent laws protecting Monsanto's GM technology" (ACB 2013, p.5). In a different publication focusing on the harmonisation of Africa's seed laws, the ACB makes the following statement:

> "Where the colonialism of the past was largely about the extraction of natural resources as cheaply as possible, the new wave of capitalist investment in African agriculture is about building domestic markets while also extracting surpluses in the form of debt repayments and dividends"
>
> (ACB 2012a, p.11)

The 'Trojan horse' metaphor is used to embellish accounts of several different agri-biotech issues. For example, the water-efficient maize for Africa (WEMA) public-private partnership in which Monsanto plays a central role has been described as "a Trojan horse to pressurise participating governments to pass weak biosafety regulations and open the door to the proliferation of GMOs that will undermine food sovereignty" (FoE 2015, p.25). The Trojan horse metaphor has also been utilised in reference to the Alliance for a Green Revolution in Africa, Bayer's attempts to introduce GM mustard in India, bio-fortified 'golden rice', and the Transatlantic Trade and Investment Partnership (TTIP) trade deal, to name just a few. Other metaphors deployed by the frame include a 'wolf in sheep's clothing' which performs a similar task to the 'Trojan horse' metaphor, and 'David and Goliath' which is sometimes used to depict a small but courageous individual or organisation taking on a corporate 'giant'. The 'revolving door' metaphor highlights the links between multinational agribusinesses and key regulatory agencies such as the FDA and EPA. These metaphors, along with the other

frame elements, work together to construct an image of multinational agribusinesses as inhuman, powerful and controlling. In this way, the frame effectively creates 'identification by antithesis', constructing multinational agribusinesses as a common enemy with the audience (Burke 1984).

Subversion is a key theme of Agropoly, suggesting that multinational agribusinesses and industry supporters will use whatever means necessary to promote biotechnology, such as publishing misleading statistics, funding biased research, and infiltration by contamination. The frame explicitly contests industry diagnoses of global food insecurity and prognoses for resolution of the problem by exposing alleged misinformation. It argues that there is little to show for biotechnology regardless of the hype, and that not only are the favourable statistics regularly quoted by industry actors inflated, but they also fail to account for the numerous negative impacts of agricultural biotechnology.

> "ISAAA's annual reports, published at the beginning of every year since the late 1990s, have misrepresented the performance of GM crops. They have lauded the benefits that have accompanied the introduction of GM crops everywhere, and have ignored the negative impacts and other problems"
>
> (FoE 2006, p.4)

The concept of myth is a key element of Agropoly, sometimes used in its popular sense to convey a widely held belief or idea that is in fact false. However, it is also used metaphorically to undermine the integrity of agribusiness and the biotech industry as a whole. In this sense, the biotech revolution is dismissed as mythology which invokes false or misleading tales of success in order to prophesy its own prosperous future into being.

> "A clear example of a mythical solution to world hunger problems is biotechnology which while widely discredited as a genuine solution to hunger, nonetheless has been the focus of a powerful lobby campaign by the biotechnology industry and the US Administration in the run up to the Rome Summit"
>
> (FoE 2002)

Complementing the myth component of the frame is a prominent theme of secrecy and lies; catch-phrases such as 'sowing secrecy', 'broken promises', and 'empty propaganda' regularly feature. The frame also makes frequent references to inconsistency and contradiction, such as strong criticism of the agri-biotech industry for claiming that GM food is 'substantially equivalent' to non-GM food for safety and regulation purposes but then claiming GM traits as a new innovation when it comes to patenting. The frame implies that the potential short term, isolated benefits of biotechnology come at the high price of long term and far-reaching problems, such as the irreversible damage done to some eco-systems by chemical fertilisers, or the increasing resistance of some weeds to herbicides designed for use in conjunction with GM crops. These problems are portrayed through the frame as a truth that is obscured by inaccurate industry-funded research and expensive PR campaigns. With its diagnostic emphasis on issues of deception and control, Agropoly effectively sets the scene for an alternative prognosis for the issue of global food security based on freedom, choice and empowerment; namely food sovereignty.

Food Sovereignty

The term 'food sovereignty' was coined by La Via Campesina (The International Peasant's Movement) in 1996 at the FAO World Food Summit, Rome. It was an explicit attempt to challenge the dominant understanding of food security that has long supported the growth of industrial agriculture (FoE 2011c). The Nyéléni Food Sovereignty Forum of 2007 defined food sovereignty as:

> "the right of peoples, communities, and countries to control their own seeds, lands, water and food production through just and ecological systems; which ensures enough diverse, nutritious, locally produced and culturally appropriate food for all"
>
> (FoE 2010, p.32)

The Food Sovereignty frame reflects these principles, portraying agricultural biotechnology as a direct threat to food sovereignty. It is deployed by both ACB and FoE, along with other CSOs involved in the anti-biotech movement. The frame makes a strong appeal to the principles of justice and unalienable human rights. Appealing to these common ideals is an effective rhetorical strategy in that it creates identification, whereby the audience senses common ground with the frame (Burke 1984). In doing

so, the frame constructs the argument that allowing the proliferation of agricultural biotechnology will lead to the loss of the fundamental rights and freedoms that allow communities and their food systems to thrive. Agribusinesses, industry organisations, and pro-biotech institutions are therefore implicitly depicted as perpetrators of human rights violations.

> "Decisions taken by the EC [executive council] authorising the import, release and marketing of GMOs adversely affect the fundamental human rights of the public. These rights include inter alia, the right to nutritious, safe and culturally acceptable food, the right to informed choice, the right to fair administrative decision making, the right to democratic participation, the right to save and exchange seeds, and the right to a safe and healthy environment"
>
> (ACB 2005, p.4)

In this sense, the frame supports an understanding of food security based on more qualitative measures than simply producing enough food to feed the world's population. Predominantly prognostic in nature, it advocates an approach that avoids generic solutions and is instead sensitive to local contexts, emphasising the freedoms that farmers require to take control of their own food and agricultural systems, and to produce food in ecologically sound and sustainable ways.

There is a strong visual element to the Food Sovereignty frame. Images portraying indigenous farmers employing traditional farming techniques and producing a good harvest frequently appear alongside other frame elements. They act to enhance the impact of the other frame elements by providing visual confirmation of the efficacy of the techniques themselves and the wellbeing of those employing them.

Figure 7. GM Cotton Farmer, India in Contrast with Women's Organic Garden, Senegal





(FoE 2009, p.5 & 29)

These kinds of images often appear in conjunction with images of desolation such as deforested areas, or despairing farmers surrounded by failed GM crops. The resulting effect is to emphasise the alleged differences between the experiences of those disempowered by agricultural biotechnology and those empowered by local and traditional approaches. This strategic juxtaposition of the resulting life worlds of food sovereignty and agricultural biotechnology makes it obvious to the audience which pathway is worth pursuing.

Pro-biotech Core Frames

Inevitability

The Inevitability frame is so called because it presents agricultural biotechnology as a necessary response to the issue of global food security. The frame is widely deployed by both Monsanto and the ISAAA. Through a combination of frame elements a strong diagnostic narrative is constructed, portraying a world with a burgeoning population facing increasing challenges associated with climate change, and a narrowing set of options.

> "The facts are simple and sobering. By the year 2050, humanity will need to double the amount of food produced in the world to meet the demands of the growing population. With 80 percent of the world's arable land already in production, increasing demand for food poses extraordinary challenges"
>
> (Monsanto 2009, p.8)

Central to this narrative is evidence of the rapid spread of biotech crops, reportedly demonstrating increasing public awareness and acceptance of the technology as consumers and decision-makers come to acknowledge the necessity of taking action. According to the Inevitability frame, the only way of meeting increasing global demand for food on existing agricultural land is to increase yields using agricultural biotechnology. Indeed, "it's all about yield" (Monsanto 2008a, p.3). There is a sense of increasing consensus on this issue from a range of actors.

The Inevitability frame is firmly rooted in statistical representations of food security consistent with institutional definitions. This emphasis on quantification results in a diagnostic framing that is premised on the notion of a finite 'global food supply'

(Mooney & Hunt 2009, p.475). The definition of food (in)security the frame sponsors appeal to has direct implications for the way they diagnose the issue of agricultural biotechnology, and subsequently form a particular prognosis. In this case, the impression that the use of agri-biotech is inevitable is constructed through the use of a categorical syllogism, an argument formed of two premises and a conclusion:

i) Food insecurity is the problem of an insufficient global food supply

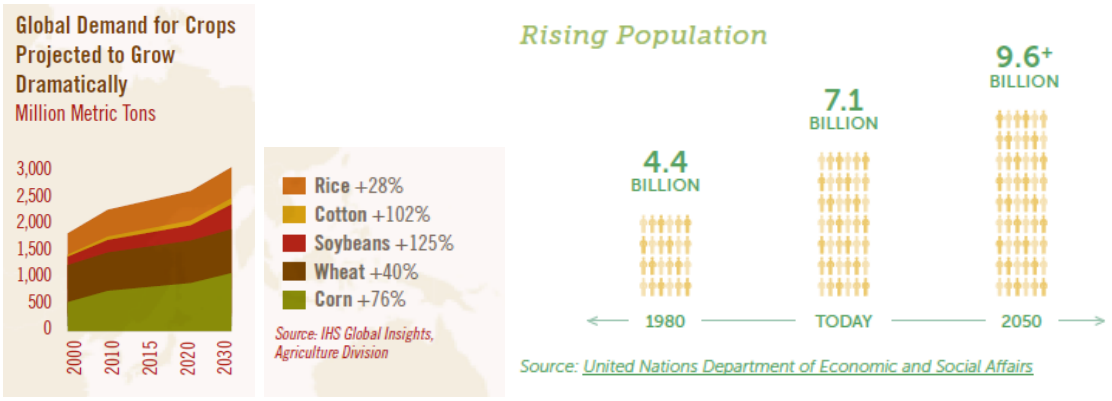
ii) Agricultural biotechnology addresses the problem of an insufficient global food supply

iii) Therefore, agricultural biotechnology addresses food insecurity

In some instances, the categorical syllogism is presented in the form of an enthymeme, where the reader is left to fill in the missing part of the argument. This is a classic example of rhetoric in action. Having arrived at the logical conclusion by their own volition, the reader is more likely to be convinced of its validity *(logos)*. In other words, the argument appears to present a clear line of deductive reasoning based on accepted premises – no obvious logical leap is required. However, presented in this way the argument silences conclusions that might have resulted from a line of argumentation resting on different premises. Had food insecurity been defined in terms of access to food, for example, the prognosis may have looked somewhat different. In this way, important issues such as inequality, distribution, land tenure, and infrastructure may be excluded from the debate.

In keeping with this quantitative diagnosis of the challenge of food security, the exemplars most often deployed by the frame are statistical in nature, such as data on population growth and the increase in global food production required to feed future generations, data indicating improved crop yields, and data demonstrating the increasing prevalence of GM crops worldwide. These exemplars are often accompanied by graphics which help to visualise the data such as charts and graphs. The data used tends to come from organisations which are widely considered to be reputable sources such as the UN or World Bank. As international organisations bringing together different national interests in pursuit of common objectives, multilaterals are likely to be perceived as both competent in their functions and as champions of society's best interests. Thus, the frame's audience are likely more inclined to trust the reproduced claims of a multilateral organisation than they would the direct claims of its profit-driven sponsor. In this way, the frame constructs a sense of its sponsor's credibility *(ethos)* through appeals to external sources of authority.

Figure 8. Images Consistent with the Inevitability Frame



(Monsanto 2012, p.24; Monsanto 2014b, p.21)

Other visual images used in this frame include those indicating population growth such as bustling city streets, and portraying high crop yields such as trucks overflowing with grain. The overall effect is the impression that whilst the people are numerous, with biotechnology the food is plentiful.

The combined impact of these frame elements is a sense of inevitability that agricultural biotechnology must play a role in global efforts to address food security concerns. The frame constructs a sense of urgency based on the premise that failure to accept, promote, and fully engage with biotechnological approaches to increasing food production will not only exacerbate global food insecurity but will also threaten global social, political, economic and ecological stability. This is expressed through strong motivational framing.

> "If we do not succeed, the world will have to face tremendous instability, unrest, and wars and the ecological equilibrium of our planet will be in jeopardy!"
>
> (ISAAA 2015, p.3)

Inevitability's diagnosis of a currently insufficient food supply to meet the world's growing demand thus sets the scene for a prognosis advocating the creation of an enabling environment for agricultural biotechnology, in conjunction with other trade liberalisation measures consistent with the neo-liberal economic assumptions of the frame. In this context, neoliberalism is conceived of as an ideology based on belief in the power of market forces to deliver benefits to society. Neo-liberal principles and policies therefore focus on deregulation, privatisation, and unfettered competition. This ideology takes on a particular significance in the domain of international

development, promoting the highly contested assumption that free-market strategies are the best route to poverty alleviation. Neo-liberal development discourse therefore "emphasizes competitive entrepreneurial individuality, deregulation of international trade, an economistic definition of poverty alleviation, and the privatization and downsizing of social services" (Jarosz 2011, p.130). This prognosis is further developed by two complementary frames; Together for Sustainability and Nature-Enhancing Technology.

Together for Sustainability

Together for Sustainability presents agricultural biotechnology as a forward-looking and environmentally sound response to the issue of global food security. The frame promotes the position that whilst we need to produce more food for the world's growing population, we must also do this responsibly, stewarding and conserving natural resources for future generations. Primarily sponsored by Monsanto, the frame takes the stance that the only sustainable way of meeting the increasing global demand for food, without encroaching on protected land or threatening biodiversity, is to increase the productivity of existing agricultural land. The catch-phrase of 'sustainable intensification' is a key signifier for this frame, embodying the claim that it is possible to achieve these demands through the use of agricultural biotechnology. Building on the diagnosis of Inevitability, a sense of necessity is formed through an implicit assumption that other options are untenable or already exhausted.

> "It would be possible to expand the land devoted to crops; but that would require destroying forests and putting wildlife and biodiversity at risk. The only environmentally sustainable alternative is to increase productivity on the fertile, non-erodible soils already in crop production"
>
> (Monsanto 2009, p.8)

Catch-phrases are an important element of this frame, helping to convey a sense of responsibility towards people and planet. These include 'feeding the world's growing population', 'meeting the needs of future generations', and Monsanto's motto of 'produce more, conserve more, improve lives'.

Together for Sustainability claims that agricultural biotechnology is sustainable on the basis that as well as increasing yields, it ostensibly helps to reduce pesticide use,

conserve water, and protect biodiversity. Frame exemplars which support this position demonstrate complementarity between agricultural biotechnology and sustainable farming practices and outcomes. The most commonly cited of these is conservation tillage. The corporate advocates of this technique claim that it reduces labour, soil erosion, and pesticide run-off, and is complemented by the 'judicious' use of GM herbicides such as Monsanto's *Roundup* (Monsanto 2001, p.11).

> "Biotech crops are helping us to heal our soils and get better harvests. For the first time in farming history, thanks to a no-till farming system, we will be able to look into our sons' eyes knowing that we will give them better soils than the ones that we received from our parents"
>
> (Monsanto 2014b, p.17)

These kinds of exemplars are often accompanied by supporting statistics that indicate improved environmental performance, such as reduced pesticide use, reduced water consumption, and reduced greenhouse gas emissions. The images deployed by the frame provide further support for the theme of environmental sustainability, helping to visualise a scenario in which agricultural biotechnology plays a key role in sustaining a healthy planet. These include images of green and diverse landscapes, protected areas such as forests and rivers, farmers benefiting from sustainable methods, and children and communities engaging with sustainability initiatives.

Figure 9. Images Consistent with the Together for Sustainability Frame



(Monsanto 2009, p.16)

As the captions accompanying the images in figure 9 indicate, the frame makes it clear that sustainably increasing food production is not something that can be achieved in isolation but is a shared challenge which requires a unified global response.

> "No single company or industry can tackle these challenges alone. Working together, however, we can create sustainable solutions for the world's future generations"
>
> (Monsanto 2016, p.4)

For this reason, the themes of openness, learning, and dialogue are prominent in the frame. Together for Sustainability highlights collaborative approaches to tackling shared problems. In doing so it creates a sense of inclusivity, adopting the use of an assumed 'we' to convey the message of 'we're in it together' (Burke 1984). This focus on collaboration is often exemplified through information-sharing initiatives where agribusinesses share their technology royalty-free with competitors and research institutes to accelerate advances towards breakthroughs in agricultural biotechnology which will reportedly benefit global society. One of the most frequently cited examples is WEMA, a partnership through which Monsanto, USAID, the Bill and Melinda Gates Foundation, and others, are making drought-tolerant maize available to African farmers without them having to pay royalties to the company.

Nature-Enhancing Technology

This predominantly prognostic frame presents agricultural biotechnology as a safe and technologically sound response to the issue of global food security. It is based on the assumption that whilst nature presents many challenges to agriculture such as weeds, pests and climate change, it also produces many great resources which can be effectively harnessed and enhanced through biotechnology in order to address them.

> "Innovation is an essential part of our everyday lives in areas like medicine, communications and transportation. It is also essential in agriculture, to enable increased crop productivity and efficiency and improved environmental efficiency and stewardship"
>
> (Monsanto 2013b, p.ii)

The implicit root of the issue as presented by this frame is that global food insecurity is exacerbated by nature's inability to adapt quickly and efficiently enough to climate change and the growing and changing needs and demands of consumers. Agricultural biotechnology is therefore able to give nature a helping hand, allowing farmers to "do more with each seed" (Monsanto 2004, p.2).

Whilst it is deployed both by Monsanto and the ISAAA, Monsanto is the primary sponsor of this frame. The neo-liberal economic assumptions underpinning the frame, and indeed the company's primary interests, are revealed by its focus on commercialisation. For example, Monsanto is committed to "creating products that help farmers make the most of their land by growing crops with greater uniformity, disease resistance, earlier maturity, and better shipping ability" (Monsanto 2009, p.25). These claims are supported by exemplars of branded products including vegetables with characteristics such as enhanced flavour, uniformity, nutritional value, and pest-resistance, and crops with built in herbicide or pesticide tolerance. These are sometimes accompanied by complementary facts and images.

Figure 10. Images Consistent with the Nature-Enhancing Technology Frame



(Monsanto 2012, p.81 & 83)

Consistent with this focus on commercialisation, the frame envisages an ideal prognosis characterised by an enabling environment for agricultural biotechnology which is free from excessive regulation, unencumbered by trade barriers, and supportive of IPR protection.

Nature-Enhancing Technology promotes the case for 'substantial equivalence', invoking the logic that since plant breeding has been part of agricultural practice for many centuries, and much of the fruit, veg and grain we enjoy today is a result of

selective cross-breeding, there is nothing new or substantially different about GM produce.

> "Plant breeding has been a part of everyday life since the dawn of agriculture. Most plant species have improved dramatically from agricultural breeding, and a good number of the fruits, vegetables and grains we enjoy today did not exist in their current state prior to selective and cross breeding"
>
> (Monsanto 2014b, p.22)

The frame promotes agricultural biotechnology on the basis that it allows these positive developments to take place with much more efficiency, helping Monsanto to "develop new, elite seeds faster than ever before" (Monsanto 2011, p.4). It does this on the strength of appeals to the principles of scientific knowledge, technology and modernity. Innovation and progress are key themes, and the metaphor of the agri-biotech research engine helps to convey a sense of continual forward motion through technological means.

Missed Opportunities

The Missed Opportunities frame presents agricultural biotechnology as an underutilised response to the issue of global food security. The frame has a predominantly diagnostic focus, arguing that agri-biotech has unrealised potential which is being wasted because of excessive regulation, unwarranted safety concerns, and disruption by misinformed activists.

> "The pace of introduction of new technologies has been slow in agriculture compared to any other sector because of onerous regulation requirements. These regulatory constraints have been exacerbated by procedural delays precipitated by activists who are well resourced and mobilized in national campaigns to unnecessarily delay the adoption of new generation seeds and biotech crops which are subject to a very rigorous science-based regulation system"
>
> (ISAAA 2008b, p.18)

There is a marked difference in the way this frame is deployed by the ISAAA and Monsanto. As the ISAAA is a predominantly industry funded non-profit organisation, it

is hardly surprising that it uses frames in common with Monsanto. However, the Missed Opportunities frame is deployed noticeably more frequently and explicitly by the ISAAA than Monsanto. This is perhaps because the ISAAA is free to act as an industry mouthpiece and directly refute oppositional claims without the risks faced by a customer-facing, profit-dependent organisation.

Missed Opportunities makes use of exemplars which seek to demonstrate specific opportunities that have been missed because of resistance to agricultural biotechnology. These are sometimes presented alongside examples of nations or regions that have reportedly benefited from progressive pro-biotech policy and legislation, providing a contrast which serves to elevate the case for the use of GM crops. In an ISAAA document about African agricultural exports to Europe, for example, South Africa is highlighted as the only African country to have adopted and commercialised GM crops, having ostensibly reaped farm income gains amounting to $150 million between 1998 and 2006 (ISAAA 2008a, p.1). The document explains that other African nations have spurned agricultural biotechnology on the grounds that their exports would be rejected by 'sensitive' import destinations such as the EU, when in reality the decline in exports would be negligible. The frame deploys the artistic proof of *pathos*, using emotions such as shame to "make audience members more receptive to the ideas being presented" (Hoffman & Ford 2010, p.29).

> "Failure to provide this critical support at this time will risk many developing countries missing out on a one-time window of opportunity and becoming permanently disadvantaged and non-competitive in crop productivity, with all its dire implications for the hope of alleviating poverty"
>
> (ISAAA 2007, p.xvii)

The Missed Opportunities frame conjures a sense of risk, contending that whilst agricultural biotechnology presents the best chance of tackling the issue of global food security, its success is not guaranteed. It appeals to the emotions of its audience, arguing that without regulatory approval, protection of IPRs, and less interference from activists, industry hands are tied and the opportunity to turn the situation around will be missed.

> "This kind of evidence offers great hope that farmers can continue to meet the challenge of feeding, clothing and fueling an ever-growing population. But our success is by no means guaranteed… For example, some people oppose the kind

> of technological advances that have allowed the world to maintain a readily available and reasonably affordable food supply thus far"
>
> (Monsanto 2009, p.8)

The frame depicts opponents of agricultural biotechnology as ignorant scaremongers, rejecting as they do both the scientific and experiential evidence supporting the safety and benefits of GM crops. This depiction is supported by the frame's catch-phrase regarding the 'lack of knowledge and awareness' amongst the anti-biotech movement, taking on an almost patronising tone to effectively dismiss 'unscientific' allegations. Opponents of agricultural biotechnology are sometimes described as 'Luddites'. This metaphorical device reinforces the theme of missed opportunities by conjuring notions of ignorance, misinformed protest, and fear of technology and progress. The diagnosis presented by Missed Opportunities highlights farmers as those with the most to lose from continued rejection of agri-biotech, but also as crucial to turning the situation around. In doing so it paves the way for a farmer-focused prognostic framing which emphasises industry-farmer partnership as an effective approach to the issue of global food security.

Farmers Know Best

The Farmers Know Best frame presents agricultural biotechnology as a farmer friendly response to the issue of global food security. This predominantly prognostic frame takes the position that the best way to address the challenge of food insecurity is for agribusinesses to work together with farmers, harnessing their extensive knowledge. Farmers know what works, and agribusinesses are 'farmer-focused', committed to listening, responding to their needs, and equipping them with the best possible tools for the job, including biotech seeds and associated inputs. These products empower farmers, giving them the opportunity to increase their productivity, and broadening the choices available to them. It is in the agri-biotech industry's best interests to look after the needs of farmers in this way because effective products sell, but it is also in the public interest as it improves global agricultural productivity and sustainability. The catch-phrase of 'win-win' captures this theme of multiple beneficiaries, often accompanied by exemplars taking the form of lists of farmer benefits, processor benefits, consumer benefits and environmental benefits. The catch-phrase 'when the

farmer succeeds, we succeed' is a key signifier in that it evokes many of the frame's core messages in a condensed form.

Within this frame, farmers are depicted as savvy and innovative, whilst agribusinesses are portrayed as their equippers and greatest champions, in what reputedly constitutes a very effective partnership. This theme of partnership is often portrayed through visual images showing farmers and agribusiness reps interacting in an agricultural setting, appearing to touch, assess, and discuss a crop.

Figure 11. Images Consistent with the Farmers Know Best Frame



(Monsanto 2002a, p.8; Monsanto 2006, p.15; Monsanto 2014a, p.3)

These images depict farmers (who are often the focus of anti-biotech frames) in their close to the coal-face position as broadly in agreement with the actions of the agri-biotech industry. They thus have a self-validating effect, confirming that farmers are in fact happy with the status quo.

Two further catch-phrases used in this frame depict farmers as 'masters of risk aversion' and 'the best judge'. They are often accompanied by exemplars such as evidence suggesting that an increasing number of farmers are using biotech inputs. The combined effect sends a clear message – if farmers are good judges and masters of risk aversion, and if they are increasingly adopting biotech products, then those products must be effective. This style of argument is another example of a categorical syllogism and can be expressed as follows:

i) *Farmers only adopt effective products*
ii) *Farmers adopt biotech seeds & inputs*
iii) *Biotech seeds & inputs are effective products*

> "Indian farmers have not only been receptive but proactive in the adoption of all the new technologies, as and when they were made available to them – they are the practitioners and the best judge of any crop technology and they are also the masters of risk aversion"
>
> (ISAAA 2008b, p. 18)

Appeals to principle are made along these lines, emphasising the importance of respecting the knowledge and experience of farmers and practitioners. Indeed, the farmer is romanticised as "a quiet, unwavering figure [who] has remained for generations at the center of solutions to some of our world's most pressing needs" (Monsanto 2012, p.3). First-hand narratives of farmers' experiences, often accompanied by pictures, are perhaps the most powerful exemplars deployed, lending credibility to the central claims of the frame, and emphasising the benefits of agricultural biotechnology enjoyed by real people. This storytelling element of the frame involves large-scale American farmers and smallholder farmers from the global South alike, highlighting a commitment to both.



"Innovative Dekalb® maize hybrid seeds have contributed towards a better livelihood for my family. There are multiple benefits. Higher yield creates higher maize grain sale and additional income. Further, incremental income comes from sale of the maize shank and green stalks of the maize crop. This, in turn, ensures that we can live in a pucca house, give our children a better education, expand our cultivable area and earn more for our family"

(Monsanto India Limited 2013, p.10)

Frame Analysis

Having briefly elaborated on each of the frames, it is at once evident that the pro and anti-biotech frames tell very different stories about the nature of agricultural biotechnology, and its suitability as a response to the issue of global food security. Taken individually, each frame presents a persuasive account of its position. The cumulative effect of the anti-biotech frames is even more convincing, as is that of the

pro-biotech frames. However, considered in their totality, the spectrum of frames presents an array of conflicting, contrasting, and sometimes confusingly complementary claims that require careful unpacking in order to understand how they reflect the interests of their sponsors. Creed et al argue that a "main contribution of frame analysis lies in its ability to unveil highly charged political differences that are typically masked by bland and seemingly innocuous policy statements and discourses that no one could object to" (2002a, p.45). The aim of this section is to harness frame analysis in this way, looking beyond the surface level of the frames to reveal the ideological and political differences disguised by the rhetoric. Some explicit frame clashes, implicit frame conflicts, and contested frame elements have been identified throughout the process of analysis, though by no means an exhaustive list. Further exploration of these clashes and commonalities serves to unveil some of the strategic political dimensions at play within the pro and anti-biotech frames. This lays the foundation for thinking about how different organisations seize discursive opportunities to shape the outcomes of public issue framing contests.

Explicit Frame Clashes

A brief examination of the signature matrices reveals that in many instances there are explicit clashes between the pro and anti-GM frames. For example, whilst exemplars within Agroecology suggest that smallholder agriculture already produces the majority of the world's food and can continue to do so, Inevitability portrays an entirely different state of affairs in which rapid population growth necessitates an increase in agricultural productivity only feasible through industrial farming techniques and agricultural biotechnology. Frankenfood stresses the risks of consuming GM food, claiming, for example, that GM crops are "subject to potentially hazardous unintended effects" (FoE 2004a, p.2) and "go through very little testing for health and safety" (ACB 2011c, p.3). Nature-Enhancing Technology, on the other hand, extols the virtues of industry safety standards, arguing that "multiple health societies, hundreds of independent scientific experts and dozens of governments have determined that biotech crops are safe" (Monsanto 2012, p.85).

Some core frames clash less through direct claims, but more in the way they portray certain factors, issues or stakeholders. The image of the biotech industry portrayed by Agropoly is that of a nameless and faceless behemoth. The metaphors of 'gene giant', 'Goliath, 'Trojan horse', and a 'wolf in sheep's clothing' build up a picture of a brazen,

power-crazed entity that will stop at nothing in its pursuit of profit. This portrayal is a world apart from the picture painted by Together for Sustainability in Monsanto's 2014 Sustainability Report:

> "We are a collection of food enthusiasts, mothers and fathers, innovators, botanists, farmers and thinkers all striving for the same thing: helping to make balanced meals more accessible to all. And when we can help do it in a way that helps protect the environment, everyone wins"
>
> (Monsanto 2014b, p.5)

Why does Monsanto paint such a picture? In short, it counteracts the image portrayed by the anti-biotech movement, instead conjuring a sense of relatability. Monsanto presents itself as a community of real and engaged people; co-collaborators in the shared challenges of sustainability and food security. Similarly, the Farmers Know Best Frame commonly deployed by corporate agribusiness emphasises the humanity of the business, as expressed through pictures of farmers interacting with corporate representatives. Agribusiness is presented as the dedicated partner of farmers worldwide, their greatest champion whose fate is closely tied with theirs – 'when the farmer succeeds, we succeed'.

Implicit Frame Conflicts

In contrast to the explicit clashes evident between some opposing frames, there are several examples of pro and anti-biotech frames which appear to appeal to the same themes and principles. Themes that feature in both pro and anti-biotech frames include, for example, long-termism, biodiversity, dialogue, community, innovation, choice, empowerment, and the right to food. At first glance this level of thematic overlap appears counterintuitive. However, in their discussion of consensus frames, Mooney and Hunt note that "the same phrase can be used quite differently by various claims-makers" (2009, p.470). They proceed to explain that the differences in the positions of these claims-makers on outwardly unifying issues such as security and sustainability become clearer through the process of frame elaboration. Indeed, closer inspection reveals how the apparent similarities between the pro and anti-biotech frames mask a wealth of differences.

Sustainability

Sustainability is a central theme for several of the frames, most notably Together for Sustainability and Agroecology. Both frames, one in favour of agricultural biotechnology and the other against, consider sustainability fundamental to feeding the world into the future. However, the concept is conceived of very differently within the two frames.

'Sustainable intensification' is a catchphrase central to Together for Sustainability, acting as a 'conceptual handle or peg' on which many of the frame's central claims hang together (Benford & Snow 2000, p.623). In Monsanto's deployment of the frame, sustainable intensification is presented as a golden bullet, "the key to meeting food security needs for our growing planet while also reducing agriculture's impact on the environment" (Monsanto 2014b, p.20). The catch-phrases of 'increasing yields' and 'growing more on every acre' alongside exemplars of improved environmental performance (e.g. reduced pesticide use, water consumption, and greenhouse gas emissions) due to agricultural biotechnology combine to convince the reader of a win-win scenario where the world's food needs are met and the natural world flourishes. Monsanto is part of USAID's 'Feed the Future' programme, along with several other multinational agribusinesses including Cargill and DuPont. This programme promotes sustainable intensification as an essential approach to meeting the world's food needs which "harnesses advanced technologies developed with a deep understanding of how they will work together with local agroecological systems to produce more and better food for growing populations, stimulate economic growth, and build resilience, while using fewer natural resources" (USAID 2015). This technology-based, market-oriented approach clearly identifies the neo-liberal economic assumptions which provide the foundation for the sustainable intensification philosophy.

These same assumptions are reflected in Monsanto's promotion of sustainable farming practices which neatly complement its business strategy:

> "The integrated use of Roundup with our branded seeds and biotechnology traits in conservation tillage (con-till) systems remains our largest near-term growth opportunity. Farmers who use con-till methods are dramatically reducing the rate of soil erosion, thereby meeting a major need in agricultural sustainability"
>
> (Monsanto 2001, p.4)

Conservation tillage is an agroecological farming method where the soil is not turned over with a plough, and where crop residue is left on the land, therefore providing protection from soil erosion, among other benefits. Though not traditionally associated with the use of chemical inputs, agribusinesses have promoted conservation tillage as a sustainable farming technique, complemented by the prudent use of herbicides (Paul & Steinbrecher 2003). The combination of seeds, traits and chemicals described above is often referred to as an 'integrated package' which will increase productivity whilst also reducing the cost of farming and improving the sustainability of agriculture. In Monsanto's annual report released the following year, the company claims that "continued growth of *Roundup Ready* crops and further expansion of conservation tillage practices drove up sales volumes of *Roundup* and other glyphosate-based herbicides" (Monsanto 2002a, p.22). Whilst from a neo-liberal economic perspective there is perhaps no contradiction between the promotion of this farming practice as sustainable and the resulting increase in the sale of chemical inputs, the approach is certainly at odds with the notion of sustainability evident in the anti-biotech frames. Furthermore, Monsanto's long-term promotion of this one sustainable agricultural practice which is compatible with its products, and silence on other less lucrative practices, suggests that the company promotes a concept of sustainability that serves its particular interests; namely to increase profits.

The very notion of intensification that underpins Monsanto's approach to sustainable agriculture runs contrary to the understanding of sustainability promoted by the Agroecology frame. Within the Agroecology frame, sustainability is more likely to be described as the de-intensification of agricultural production. Indeed, from this perspective, 'sustainable intensification' is an oxymoron – intensification through industrial agriculture is inherently harmful, undermining soil health, biodiversity and water quality among other things. One of the implicit assumptions of Agroecology is that smaller is better. The term sustainability is used sparingly within the Agroecology frame, perhaps in wary acknowledgement that the term has been so popularised as to have lost much of its impact. However, when the term is used it is often associated specifically with small-scale agriculture. Therefore, although sustainable food production may involve scaling up, this would involve expansion of small-scale farming rather than scaling up industrial agriculture.

> "Agro-ecological farming techniques include the innovative management of soils, water, biological resources, genetic diversity, pests and disease vectors,

> and the conservation of natural resources in a culturally appropriate manner. Adopting these techniques – combined with the promotion of small-scale farming – would provide a powerful tool in creating sustainable agricultural development, wider employment opportunities, enhanced rural livelihoods and ultimately greater yields, thereby reducing hunger and poverty"
>
> (FoE 2009, p.28)

Whilst Together for Sustainability is shaped by the neo-liberal economic assumption that growth is good, Agroecology implies that big is inherently unsustainable, and that a greater number of small farming operations can be at least as efficient and productive as large-scale industrial agriculture whilst also working in harmony with the natural environment. As such, the Agroecology frame is consistent with Friends of the Earth's political agenda of building a society "founded on social, economic, gender and environmental justice and free from all forms of domination and exploitation, such as neoliberalism, corporate globalization, neo-colonialism and militarism" (FoE 2011a, p.2).

A key signifier for the Agroecology frame is biodiversity. Friends of the Earth claim that multinational agribusinesses

> "contribute to the destruction of cultural, spiritual and biological diversity and prevent the majority of farmers from conserving and sustainably using the millions of varieties of food crops they develop and adapt to changing needs and local agro-ecosystems"
>
> (FoE & La Via Campesina 2009, p.1)

There is an assumption of holism underlying Agroecology's notion of sustainability, emphasising the interconnectedness of human and natural systems. Diversity is a core value, and different types of diversity are seen as mutually reinforcing. Diversity is presented as a prerequisite for having the freedom to flourish and adapt to new challenges, translating into decreased vulnerability. Biodiversity is also a feature of Together for Sustainability. Monsanto explains that promoting biodiversity is one of its many efforts "aimed at sustainable intensification" (Monsanto 2016, p.4). The underlying purpose of maintaining biodiversity is clearly to create an enabling environment for the expansion of GM crops, in line with the company's commercial interests. The way Monsanto constructs the concept of sustainable intensification as supported by biodiversity promotion is fundamentally at odds with the Agroecological

understanding of biodiversity, which would dismiss claims of biodiversity promotion alongside the cultivation of monocrops as highly contradictory.

Choice

Another theme which appears in frames both advocating and criticising agricultural biotechnology as a response to the issue of food security is that of choice. Choice is a prominent feature of the Food Sovereignty frame, central to which is the right of all peoples to "define and own their own food and agriculture systems" (FoE et al 2012, p.5). The frame establishes the position that agricultural biotechnology disempowers farmers by limiting their choices, or removing them completely. When considering agri-biotech products a farmer may initially appear to have a choice, but having entered into a technology agreement they are then obliged to purchase the associated inputs. Furthermore, GM seed patents mean that they no longer have the choice to save and replant their seed the next season, a common traditional practice in many farming communities. In this sense, Food Sovereignty constructs the concept of choice offered by agri-biotech as an illusion which fools farmers into relinquishing a level of ownership and control of their food systems into the hands of multinational agribusinesses. Promoting such a representation is consistent with the ACB's explicit interest in "strengthening farmer-managed seed systems" and "inhibiting the encroachment of corporate laws and policies into African seed systems" (ACB 2018). As such, the organisation deploys elements of the Agropoly frame in conjunction with Food Sovereignty, emphasising corporate control over farmers' freedoms.

> "Encouraging the use of proprietary seed makes previously independent farmers dependent on the yearly purchase of the proprietary seed and the associated agrochemicals (fertilisers, herbicides, and pesticides). The farmers' food supply is now dependent on the external inputs from a small number of agricultural biotechnology companies"
>
> (ACB 2010, p.12)

Choice is also a significant theme in the Farmers Know Best frame, and is similarly linked to empowerment. The frame suggests that agricultural biotechnology benefits farmers by increasing the choice and efficacy of seeds and other agricultural inputs available to them. Monsanto is therefore portrayed as an agent of empowerment, and an effective partner to farmers, equipping them with "better tools and information"

(Monsanto 2012, p.2). Exemplars are a key element of this frame, suggesting that the fact that farmers, who are 'masters of risk aversion', continually choose to adopt these products testifies to their quality and effectiveness:

> "Feedback from farmers, the primary beneficiaries of crop biotechnology, speaks for the technology. It is farmers first, after all, who will make the crucial decision on whether to plant a particular crop or not, to sustain its adoption, and to influence peers to follow their lead"
>
> (ISAAA 2013, p.ii)

In this instance, the concept of choice is constructed to serve the political agenda of the ISAAA, which is ostensibly to harness "the potential of crop biotechnology to improve the lives of small-scale farmers in developing countries" (ISAAA 2018). The Farmers Know Best frame implicitly counteracts Food Sovereignty's portrayal of farmers as vulnerable to the deceptions of multinational agribusinesses (and Agropoly's corresponding portrayal of corporate colonialism through GM) by emphasising their autonomy and capability in making informed choices. The key signifier catch-phrase 'when the farmer succeeds, we succeed' embodies the core message of empowerment through choice, whilst also reinforcing the underlying neo-liberal assumption that a competitive market is capable of delivering a win for the farmer even as the corporation secures its own competitive advantage.

Analysis of how choice is constructed by the two frames reveals some interesting differences. The concept of choice that features within Food Sovereignty is constituted of both positive and negative freedoms. These include *freedom to choose* every aspect of the food system, but also *freedom from* coercion and control. Choice is constructed here with the language of justice and rights. Indeed, appeals to principle are often made directly to the Universal Declaration of Human Rights (UDHR), and multinational agribusinesses depicted as perpetual perpetrators of rights violations.

> "This 'intellectual property protection' criminalizes the age-old practice of seed-saving, the farmer's most fundamental right. In many cases, however, farmers who never saw or signed this agreement have been sued for violating it, their signatures forged by seed dealers"
>
> (FoE 2006, p.10)

Reported injustices are effectively emphasised through the language of law contrasted against portrayals of tradition and simplicity. For instance, Monsanto is alleged to "aggressively prosecute" farmers for the "millenia old practice of seed-saving" (FoE 2008, p.7). Local seeds are reportedly becoming "illegal", so that seed saving is now a "crime" (FoE 2008, p.40). Choice, within the Farmers Know Best frame, is predominantly discussed in terms of positive freedoms. The emphasis is on *freedom of choice* of various seeds, fertilisers, herbicides and pesticides that produce the best results, in other words choice that is enacted through the market. In keeping with the strong win-win theme of the frame, the results of this extensive choice not only benefit the farmer, but society as a whole.

> "We've built our business by offering farmers new choices that make them more productive and profitable"
>
> (Monsanto 2004, p.6)

> "With greater choice and access to appropriate tools, farmers can continue to support food security and nutrition needs around the world"
>
> (Monsanto 2012, p.81)

The concept of choice in this context is therefore somewhat constrained by the boundaries of the neo-liberal economic paradigm, best expressed through the farmer's role as a consumer. The stark contrast between this conception of choice and that of Food Sovereignty's justice and rights-based conception reveals the conflicting ideologies underpinning these competing frames.

Choice is a complex theme featuring in several of the pro and anti-biotech frames, only two of which have been considered here. Several other interesting avenues within this theme are ripe for investigation, not least how the tensions that exist between the choices of different stakeholders, exemplified in the quote below, are dealt with by different frames.

> "In the end, we choose to defend choice – for farmers, consumers, and food companies. We believe the choice to voluntarily label food products should sit with the companies who make and package food…"
>
> (Monsanto 2012, p.85)

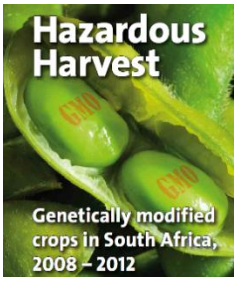
Is there, for example, a different ranking of priorities underlying competing frames – a hierarchy of choice informed by different supporting ideologies? Likewise, there are

many more component elements of the concept of sustainability as conveyed by the different frames that warrant further exploration. Both, for example, appeal to the concept of responsibility, and we may well ask responsibility to whom, and for what? However, these questions are beyond the scope of this section, the main aim of which is to simply expose and problematize some of the ideological conflicts underlying the organisations' frames, often obscured by their use of the same contested terms.

Contested Frame Elements: The Seed

Throughout the process of data analysis it became clear that this kind of contestation not only occurs at the thematic level that, but also at the frame element level where specific symbols or devices flesh out the meaning of a frame. Even frames that directly counteract one another's claims seem to share some common elements, which when elaborated upon in their different contexts, often have divergent normative implications. In this way, oppositional stories can arise around a common frame element. The seed is one such element, particularly worthy of consideration given its centrality to frames on both sides of the framing contest. Sometimes it is "only within the context of who is sponsoring them and the forum in which they are being sponsored" that certain frame elements will take on significant meaning (Creed et al 2002a, p.43). Indeed, in the context of the framing contest surrounding agricultural biotechnology as a response to the issue of global food security, the seemingly innocuous seed comes to life, and its meaning becomes highly contested. Given its centrality to the debate around agri-biotech, it is perhaps unsurprising to find that seed features in some way in every core frame identified through the first stage of analysis. Table 4 summarises some key quotes and images which demonstrate how seed serves the purposes of conflicting frames and is utilised and elaborated on differently.

Table 4. Seed as a Contested Element

Pro-biotech	Anti-biotech
Farmers Know Best: "So when we walk up to the farm gate, we are focused on selling value and innovation for the one agricultural input that matters most to farmers: the seed. Inside that simple seed is a powerhouse of technology, the likes of which farmers have never had access to before. It's that innovation that will carry us into the future, knowing that when the farmer succeeds, we succeed" (Monsanto 2008a, p.4) **Inevitability:** "Agriculture will play an increasingly important role in addressing the challenges our world faces – meeting the food and feed demands of a growing population, trying to produce more yield on each acre, as well as working to meet the needs for emerging trends like biofuels and healthier diets. Increasingly, farmers are turning to something as simple as a seed to meet these demands" (Monsanto 2007, p.5) **Together for Sustainability:** "I personally… count on your support, to ensure that we meet this challenge and spread the seed in the fight for global prosperity, using our abilities, energy, and resources to become better, responsible Stewards of this Earth" (ISAAA 1998, p.10) **Nature-Enhancing Technology:** "For the farmer, there is nothing different about the seed of these crops, but packed inside is a powerful technology" (ISAAA 1998, p.3)	**Agropoly:** "Encouraging the use of proprietary seed makes previously independent farmers dependent on the yearly purchase of the proprietary seed and the associated agrochemicals (fertilisers, herbicides, and pesticides). The farmers' food supply is now dependent on the external inputs from a small number of agricultural biotechnology companies" (ACB 2010, p.12) **Agroecology:** "Typically peasant farmers use seed that has been passed down from generation to generation and shared amongst community members. Seed has been skilfully bred and selected for local environments and to suit a variety of needs, such as climate change adaptation, taste, good storage, nutritional value, ritual and cultural needs" (ACB 2011b, p.15) **Food Sovereignty:** "Our seeds, our corn, are the basis of the food sovereignty of our communities. It's much more than a food, it's part of what we consider sacred, of our history, our present and future" (FoE 2004b, p.45) **Frankenfood:**  (ACB 2012b, p.1)

The Seed in Pro-biotech Frames

Seed plays a particularly important role in Nature-Enhancing Technology, providing the basis for many of the frame's exemplars. These include, for example, seeds with built-in pest resistance and herbicide tolerance like *Roundup Ready Soy* and *YieldGard*

Insect Protected Corn, seeds with other beneficial traits such as drought tolerance and enhanced nutritional value such as WEMA and 'golden rice', and seeds with stacked traits to address multiple agricultural challenges at once such as *Genuity SmartStax.* The core message of the frame is that "better-performing seeds offer improved profitability for farmers and narrow the gap between worldwide supply and demand"[11] (Monsanto 2007, p.7). The central catch-phrase of the frame, and an important signature element, is 'doing more with each seed' (Monsanto 2005, p.9).

Whilst highly valued, the seed is portrayed as limited in its capacity to advance and improve in ways required by the challenge of global food insecurity. Nature is both friend and foe in the context of this frame. On the one hand it provides the raw product from which agribusinesses can engineer "seeds improved through biotechnology" such as those resistant to pests, herbicides and pesticides (Monsanto 2012, p.85). On the other hand, nature also presents the very challenges that need to be overcome, such as pathogens and diseases, and environmental shocks and stressors. This duality creates the impression that nature is in need of a hand, and that Monsanto (the primary frame sponsor) is ready to "help enable each seed to increase its ability to meet the world's growing demand for food, feed and fuel" (Monsanto 2008c). In this way the frame constructs Monsanto as saviour, undertaking the noble task of bringing the best out of each seed.

> "We play a role in delivering the best seeds for farmers. The seed purchase is perhaps the most important decision a farmer makes. Unlocking the yield potential of each seed means protecting it from weed pressure, insects and environmental stresses and helping it make the most of water, sun and nutrients"
>
> (Monsanto 2011, p.3)

Nature-Enhancing Technology appeals to the principles of scientific knowledge and progress, modernity and technology. Under the heading 'seed technology', for example, one report claims that advanced breeding technologies are helping to develop seeds and produce crops "with benefits beyond what could traditionally be accomplished" (Monsanto 2013a, p.3). The implication here is that the modern technological approach

[11] This emphasis on the gap between supply and demand demonstrates the complementarity of Inevitability and Nature-Enhancing Technology – the two are often used in conjunction with each other.

is favourable to traditional methods. Interestingly, however, on occasion the modern and traditional are appealed to in unison, whereby complex new technology is offered within "a package that is as old as agriculture – the seed" (Verfaillie 2000). This approach of offering something new and unknown in a safe and trusted vessel unites the wisdom and experience of the old with the technological capabilities of the new, bringing credibility and reassurance to Monsanto's claims.

Table 5. Contrasting Representations of the Value of Seed

Pro-biotech: Seed Valued as a Vessel for Technology	Anti-biotech: The Holistic & Intrinsic Value of Seed
"They can be considered smarter seeds with added 'software'" (Monsanto spokesperson cited in Achieng 2001 p.21) "Inside that simple seed is a powerhouse of technology…" (Monsanto 2008a, p.2) "A complex technology that is used through a package that is as old as agriculture – the seed" (Verfaillie 2000) "Farmers get 'all-in-the-seed' solutions…" (Monsanto 2003a, p.8) "…we wrap all of those things into something as familiar as the farmer's seed" (Monsanto 2004, p.1)	"Indigenous people and traditional farming communities put a high value on their seeds, because they understand the connection it brings to their ancestors and the key role it plays in their culture, health and nutrition" (ACB 2012a, p.35) "seed sovereignty sits at the heart of food sovereignty" (ACB 2012c, p.5) "Seed related activities are integrated with social and economic interactions, as farmers disseminate and procure seed through barter among friends, neighbours and relatives, as well as through local grain markets or traders" (ACB 2010, p.7) "seed is sacred and meant to be shared, impossible to own, as it belongs to all people" (ACB 2012a, p.35)

The principles of scientific progress, modernity and technology are clearly reflected in the way Nature-Enhancing Technology portrays the value of the seed as primarily stemming from its function as a vessel for technology. In this sense, it is not about the value of the seed itself, but rather the value added to that seed by the corporation. This setup serves Monsanto's interests by providing an implicit justification for the patenting of genetically engineered seeds, as it is not the seed itself which is subject to a patent but the technology with which it is imbued. Monsanto claims to "use traditional plant breeding and biotechnology to create seeds that grow into stronger, more resilient crops" (Monsanto 2014b, p.7 – emphasis added). The assertion that something new has been developed is supported by references to the complexity of the technology. Agricultural biotechnology is described as "a complex technology – a technology that is the result of what we believe is the most cutting-edge science in the

world today" (Verfaillie 2000). Examples supporting this appeal to complexity include the innovation of stacking several desirable traits within one seed, providing an "all-in-the-seed solution" (Monsanto 2003a, p.8). The combined effect of these appeals to the principles of modernity, technology, and scientific knowledge and their supporting examples is to present the biotech seed as a new and patent-worthy creation.

The Seed in Anti-biotech Frames

The seed is in many ways the symbolic centre around which the anti-biotech frames flesh out their positions. Seed features in all of the core frames, but most predominantly in Agroecology and Food Sovereignty. Agroecology makes appeals to principle on the basis of the inherent value of nature, and the importance of holistic thinking across every domain of life. Seed therefore has intrinsic value as a natural and living thing, but also has value based on its role in the web of people's economic, social, cultural, and spiritual lives, particularly in rural communities.

> "Embedded in the cycle of the seed, are the community cycles, cultural celebrations, sacred rituals and identity of thousands of communities around the globe. The cycles of planting, harvesting, exchanging, sharing and celebrating have many benefits beyond providing food: they play a vital role in identity and community cohesion"
>
> (ACB 2012a, p.35)

The diversity that is so valued within the Agroecology frame is evident in its portrayal of the seed. Open-pollinated seed varieties are praised for the breadth of their genetic base, which is considered an asset, "especially when faced with climate change, where diversity is a strength, and uniformity a weakness" (ACB 2012c, p.8). This ideal of diversity sits in stark contrast with the pro-biotech frames which value uniformity consistent with commercialisation.

Whereas Nature-Enhancing Technology locates the value of the seed in the complex technology with which it can be invested, Agroecology sees value and complexity in the seed itself. There is a natural intelligence in the seed, expressed in its ability to adapt to different conditions, and in its capacity to produce and perpetuate life from within. This natural intelligence is sacred and unknowable, and therefore shouldn't be tampered with. The Food Sovereignty frame complements this portrayal by arguing

that farmers have harnessed and refined the natural complexity of the seed over the course of generations, and have done so "in harmony with nature" (ACB 2012a, p.35).

> "Farmers have been improving seed through trial and error for thousands of years, but in recent decades these processes have been removed from the hands of farmers and placed in laboratories…"
>
> (ACB 2012c, p.5)

Agribusinesses are portrayed as seed hijackers, working from a foundation laid by nature and honed by generations of smallholder farmers, then claiming responsibility for the resulting seed qualities. Through this illegitimate process, the anti-biotech frames argue, agricultural biotechnology allows "the building blocks of life to be patented by private interests" (FoE 2011a, p.25).

The Food Sovereignty frame presents traditional seed as one of the core foundations of food sovereignty.[12] The catch-phrases of 'seed sovereignty' and 'seed freedom' attest to this fact, as do the frame's many seed-based exemplars. These make appeals to the principles of justice and rights, most frequently referring to infringements of the right to use traditional methods, such as prosecution of farmers engaging in "the millenia old practice of seed-saving" (FoE 2008, p.7). The frame resists the commoditisation of seed consistent with the neo-liberal economic assumptions of the pro-biotech frames, and instead "prioritises local and national economies and markets" (FoE 2011b, p.4). Furthermore, it resists the idealisation of technology and modernity, instead appealing to the value of tradition and indigenous knowledge. Traditional seed is portrayed as under serious threat from agricultural biotechnology, as evidenced through rising seed prices and reduced choice, as well as farmers in some nations finding it "increasingly difficult to find high-quality conventional seeds" (FoE 2009, p.8). To the extent that the patenting of GM seeds impinges upon food sovereignty, it also facilitates corporate control of world food systems. Genetically engineered seed is therefore portrayed as a mechanism of control, an assertion elaborated on by the Agropoly frame.

Though only a single frame element, the different portrayals of the seed explored here have important implications for the wider framing contest. Given that they facilitate

[12] Particularly open-pollinated varieties, but also hybrids developed through traditional breeding techniques

competing and conflicting diagnoses and prognoses of agricultural biotechnology as a response to global food security, these oppositional seed stories have the potential to swing the debate one way or another. The struggle over what seed is and who it belongs to is just one conceptual battle among many within the broader debate, but its significance should not be understated. The outcome of such struggles shape how agri-biotech is understood, and have a direct impact on food security discourse and practice. Consequently, it is paramount to consider which voices dominate such struggles, and why.

Summary

The purpose of this chapter was to present the findings of the first stage of empirical research, setting out the different agri-biotech issue frames used by organisational actors in response to the issue of food security. In doing so it has answered the first supporting research question:

What agri-biotech issue frames get activated in public food security discourse?

As distinct from previous research in this context, the analysis has broken the frames down into their component elements allowing for detailed exploration of their claims, and some of the explicit clashes, implicit conflicts, and contested elements that characterise them. Through this process, the chapter has begun to address the second supporting research question:

How do organisational interests shape the framing process?

For the purpose of clarity, the frames were presented in their more static, accessible form. However, issue framing is an active and dynamic process, and frames are constantly evolving and changing as they are deployed in a given context (Benford 1997). In order to gain deeper insight into the processes of frame emergence and development over time, the following chapter situates the framing contest in context. Taking a political agency perspective, the next stage of empirical findings capture the power dynamics at play between organisational actors engaged in the public issue framing contest over agricultural biotechnology, and the resulting effects on food security discourse. In doing so, they provide a clearer understanding of how discursive opportunities facilitate and constrain the framing attempts of organisational actors with distinct interests and agendas.

Discursive Opportunities in the Struggle over Food Security Discourse

Introduction

The frames identified in the previous chapter represent agricultural biotechnology as a response to the issue of global food security in particular ways, seeking to promote specific agendas. The framing literature indicates that there are a number of factors that affect which frames dominate in the public arena and are therefore more influential on policy and public opinion. The purpose of this chapter is to explore one of these factors, investigating how the socio-political context in which a framing contest is embedded presents discursive opportunities for certain frames to resonate and gain public acceptance by appearing sensible, realistic and legitimate (Koopmans & Statham 1999). In order to do so, the chapter focuses on three key events which have occurred since the commercialisation of the first GM food crops, characterised by intense public debate and media attention. Analysing the framing strategies employed by different organisations over the course of these key events reveals how they engaged with discursive opportunities to shape understandings of agricultural biotechnology. Whereas the central concern of the previous chapter was the identification of *frames*, this chapter focuses on the active processual phenomenon of *framing* which implies agency and contention where the preferred reality is constructed, negotiated and transformed (Benford & Snow 2000; Benford 1997). In doing so, the chapter addresses the central research question:

How do organisations use discursive opportunities to contest public issues?

The chapter begins by introducing the three key events in more detail, providing a foundation for the ensuing analysis. Each event is unpacked in turn, exploring which frames were deployed, by whom, how they interacted with each other, and how certain frames succeeded in dominating the debate. The next section zooms in to focus on the three main theoretical outcomes of the analysis, relating to the power and political agency of frame sponsors, how they engage with stable and volatile discursive opportunities, frame co-optation through the appropriation of language, and the resulting struggle for discursive space. The chapter concludes with a brief summary of the analysis.

Key Events in the Discursive Struggle over Agri-Biotech

In order to investigate the question of how organisations use discursive opportunities to contest public issues, this chapter focuses on the following three events in the history of the public debate around agricultural biotechnology as a response to the issue of global food security;

i) controversy surrounding the development and potential commercialisation of sterile seed technology;
ii) distribution of GM food aid in response to various food crises and its subsequent rejection by several nations;
iii) a dramatic spike in food prices culminating in the world food crisis of 2008.[13]

The rationale for this is that these events have attracted significant public attention, as reflected in the extensive media coverage each received. They therefore represent discursive events which gave rise to volatile discursive opportunities in that they opened up new (but limited and potentially unpredictable) windows of opportunity for competing organisations to frame agricultural biotechnology in particular ways. These volatile discursive opportunities overlap with more stable opportunities presented by enduring and deeply embedded discourse (McCammon et al 2007). Changes in policy and practice, and the frequency and intensity of reproduction of both pro and anti-biotech frames in the media leading up to, during, after, and between these events, help to gauge which frames succeeded in dominating the debate, and in shaping public food security discourse.

During the process of analysis a pattern began to emerge whereby one particular frame dominated the framing contest in response to each key event. In each case, the dominant frame was specifically tailored to the socio-political context in ways which appeared to enhance its visibility, resonance, and legitimacy in accordance with the purposes of the frame sponsor at that time (Koopmans 2004). This type of framing action is newly identified and conceived of here as 'opportunity framing'. The term opportunity framing describes an issue framing process through which a frame sponsor responds to a volatile discursive opportunity; a particular window of

[13] See Appendix F for a timeline summarising these key events

opportunity arising in the socio-political context which is limited in duration and unpredictable in nature. The following analysis reveals that one existing core frame provides the foundation for opportunity framing, and is enhanced through a process of context specific elaboration as well as borrowing from complementary frames. Elements borrowed are those which are able to speak directly to the context, enhancing the resonance of the framing. Opportunity framing can therefore be conceived of as a process of context-specific elaboration of a core frame in response to a volatile discursive opportunity, often utilising elements borrowed from complementary frames, seeking to provide a compelling interpretation of events as they unfold. Opportunity framing therefore results in the articulation of a new 'opportunity frame'. Given that opportunity framing is an active, dynamic process, an opportunity frame is not static, but constantly evolving as it is moulded and refined to meet the changing needs of its sponsor in light of developments in the socio-political context.

Figure 12 provides a simple visualisation of the volatile discursive opportunities arising from the three key events against the backdrop of stable opportunities presented by longer-lived deeply embedded discourse. The icons mapped onto the diagram show where a particular frame sponsor successfully engaged in opportunity framing to dominate the public debate. A summary of the dominant opportunity frames is presented in table 6.

Figure 12. Opportunity Framing in Response to Volatile Discursive Opportunities

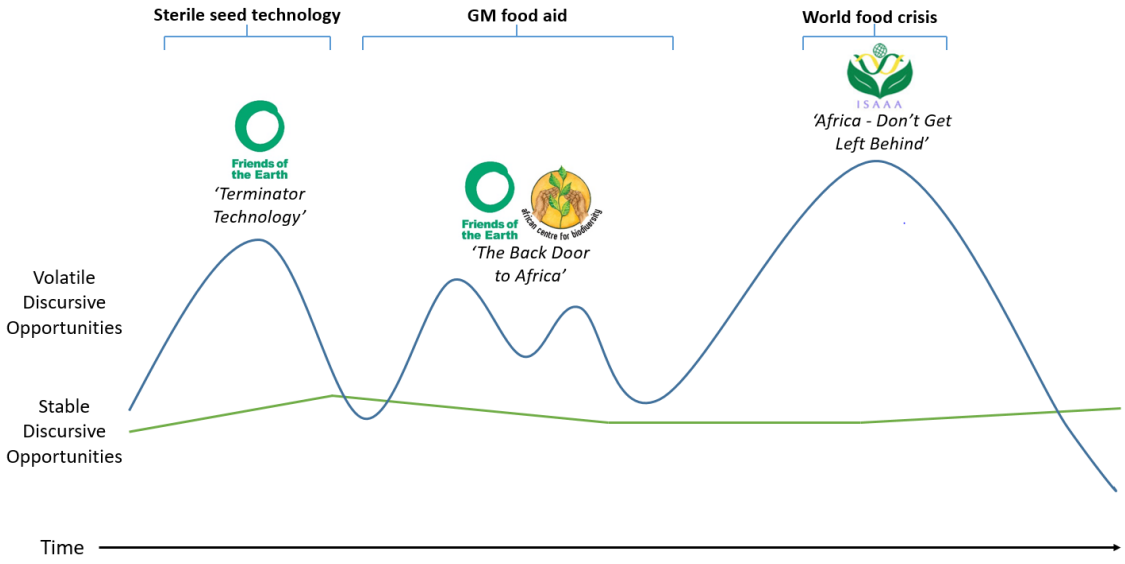


Table 6. Summary of Dominant Opportunity Frames

	Event	Opportunity Frame	Foundational Core Frame	Primary Sponsor(s)	Primary Audience	Primary Arena	Summary
Anti-biotech	Sterile seed technology	Terminator Technology	Frankenfood	FoE & RAFI	Consumers & Policymakers	Public (Media)	Sterile seed technology as dangerous, unnatural and disempowering
	GM food aid	The Back Door to Africa	Agropoly	FoE (& ACB)	General public & Policymakers	Public (Media)	GM food aid as the illegitimate 'back door' to open up African markets to agricultural biotechnology
Pro-biotech	World food crisis	Africa – Don't get Left Behind	Missed Opportunities	ISAAA	Policymakers & Scientific community	Policy arena	World food crisis as evidence of the need to use agricultural biotechnology to ensure global food security

Having introduced the concept of opportunity framing which emerged from the analysis, the chapter will now go about demonstrating opportunity framing in action. In order to situate the analysis in context, it will first be necessary to provide a brief overview of each key event.

Key Event #1: Sterile Seed Technology

Contextual Overview

Over the course of the 1990s a significant shift in public opinion towards agricultural biotechnology took place. The successful mobilisation of the anti-biotech movement in response to the US biotech industry's attempts to open up European markets for its GM products resulted in a growing sense of distrust regarding the technology (Schurman 2004). Among an array of 'weapons' used by the anti-biotech movement in the late 1990s, discursive tactics played an important role. The movement "expended enormous energy constructing and communicating alternative frames through which people would interpret and apprehend these new biotechnologies" (Schurman 2004, p.254). Heightened public concern is reflected in the dominance of the Frankenfood frame at the time, which was used to actively counter-frame industry's portrayals of agricultural biotechnology as safe and environmentally friendly, instead presenting it as dangerous, insufficiently tested, and damaging to the environment. Indeed, the frame's signature 'Frankenfood' metaphor had come into popular use by the mid-1990s, deployed as "a concise and emotional" way to express negative perspectives on GM foods (Hellsten 2003).

It was in this context that the controversy surrounding the development of sterile seed technology first came to the fore. In May 1998 Monsanto announced its plan to purchase Delta & Pine Land, a company which co-held a patent on an important new technology (Schurman 2004).[14] The technology renders GM seeds sterile after a single use and was designed to protect the intellectual property of seed companies. Quickly dubbed 'terminator technology' by the anti-biotech movement, the new seed was condemned as a ploy to "force farmers to return to the commercial seed market every

[14] Monsanto's attempted acquisition of Delta & Pine Land was eventually rejected by antitrust regulators.

year since they will no longer be able to save seed from their harvest" (Knight 1998a). Soon after Monsanto announced its planned acquisition of Delta & Pine Land, the UN Conference of the Parties to the Convention on Biological Diversity (CBD) initiated research into the potential impacts of the technology on farmers and biodiversity, meanwhile recommending the adoption of a precautionary approach (Knight 1998a). Nonetheless, at this time those in favour of the technology appeared optimistic. A spokesman for the USDA, the co-owner of the patent on the technology, unabashedly shared the department's vision to "increase the value of proprietary seed owned by US seed companies and to open new markets in second and third world countries" (cited in Vidal 1998).

A few months later the World Bank's Consultative Group on International Agricultural Research (CIGAR), the world's largest agricultural research organisation, voted to condemn sterile seed technology and forbid its use in their projects (Lambrecht 1998a). Bolstered by this high-level renouncement of the technology the anti-biotech movement's campaign to eradicate the technology gained ground. The cultural and political context in Western Europe at the time was undoubtedly a key factor in the movement's success.

> "the decade of the 1990s had brought to the continent several major food scares, including 'mad cow' disease, Creutzfeldt-Jakob disease, the discovery of dioxin in animal feed, and a rash of illnesses associated with Coca-Cola… activists had strategically used these events to build on people's inchoate fears of GM food, and of their governments' inability to assure them of a safe food supply"
>
> (Schurman 2004, p.261)

Such scepticism around the safety of GM food had built up by the late 1990s that European supermarkets began to remove GM products from their shelves, and in June 1999 five EU member states issued a statement establishing a *de facto* moratorium on the approval of new GM crops (Lieberman & Gray 2006). Part of the fallout from this was that in late 1999 share prices in the biotech industry experienced a significant drop, with Monsanto's stock losing 35% of its value over the course of a year (Vidal 1999). The company was faced with the reality of the power of public opinion and forced to recognise that "there is something psychologically offensive about sterile seed in every culture" (Monsanto spokesperson cited in Feder 1999). Finally acknowledging the futility of further efforts to develop or commercialise the

technology, Monsanto's Chief Executive Robert Shapiro announce that the so-called 'terminator' gene would never be deployed. In an unexpected turn that foreshadowed a significant shift in communications strategy, Shapiro admitted that Monsanto had "probably irritated and antagonized more people than we have persuaded… Our confidence in this technology and our enthusiasm for it has, I think, been widely seen - and understandably so - as condescension or indeed arrogance" (cited in Gillis & Swardson 1999).

Issue-Frame Analysis

Having taken a closer look at how the debate around sterile seed technology unfolded, the analysis now zooms in further to examine the different frames at play, and the interests and political agendas of their sponsors. From its inception, the debate about sterile seed technology was clearly dominated by one frame. Much like the Frankenfood frame which was prominent at the time, the dominant frame's namesake signature element was based on a strong and emotive metaphor, the 'Terminator'. The Terminator Technology[15] frame's primary sponsors were the Rural Advancement Foundation International (RAFI) and Friends of the Earth[16]. Whilst RAFI first raised the alarm at the announcement of Monsanto's proposed acquisition and coined the term 'Terminator technology', FoE's international network and visibility in the media meant it was pivotal in launching and developing the frame. FoE's primary aim in mobilising the frame was to block the commercialisation of sterile seed technology, reflecting the organisation's wider interest in securing a five year ban on GM crops to allow for further research into their impact on human health and the environment (*The Herald* 1999). Consequently, the frame was primarily targeted towards two audiences. Firstly, consumers, whose suspicions regarding agri-biotech had already been successfully aroused by the Frankenfood frame, and whose acceptance of the technology would be key to its long term commercial success. Secondly, policymakers, whose regulatory power could be employed to block development and commercialisation. One notable

[15] See Appendix D for the frame's signature matrix and appendix E for illustrative quotes demonstrating the framing and counter-framing in action.

[16] FoE often worked in conjunction with other organisations to mobilise in opposition to sterile seed technology through initiatives such as the UK Working Group on Terminator Technology and the International Commission on the Future of Food and Agriculture.

observation about the frame is that it featured much less in organisational publications than the core frames and was mainly expressed through the media. This is likely because of the organisations' need to provide a swift response to the issue as it emerged, taking longer to develop a formal position for publication.

Terminator Technology has much in common with Frankenfood. Both draw on science fiction metaphors to emphasise the risks of unfettered technological advance, portraying agricultural biotechnology in general, and sterile seed technology more specifically, as a risky and irresponsible undertaking. These frame characteristics helped Friends of the Earth specifically, and the anti-biotech movement more generally, to access the opportunity provided by the "powerful cultural sensibility around food" that had emerged in Western Europe, as reflected in Terminator Technology's extensive reproduction in the media (Schurman 2004, p. 244).

> "The BSE crisis has shown what can happen when fundamental principles articulated at our mother's knee - such as 'All cows eat grass' - are contravened. These factors are embedded deep in our psyche, and the biotech firms need not be surprised at the strong emotional reaction produced by the idea of seeds that 'terminate'"
>
> (Leonard 1999)

The insinuation is that the contravention of such 'fundamental principles' leads to undesirable unforeseen consequences of such magnitude as BSE, therefore implicitly appealing to the precautionary principle.

Terminator Technology is not simply an elaboration of the Frankenfood frame, and has certain important elements in common with other anti-biotech frames. The theme of control permeates the frame, bringing in elements of Food Sovereignty such as the recurring catch-phrase 'forcing farmers to buy more seed' and frequent reference to farmers' rights to engage in the traditional practice of 'brown-bagging', saving seed to replant the following year. These are often deployed in conjunction with elements consistent with Agropoly which develops the argument by linking the theme of control at the seed/farmer level with the bigger picture of corporate profiteering and control of world food systems as the dominant agenda at play behind sterile seed technology.

"The Terminator is not about improving agriculture… It's about sterilizing seeds, wrestling control of seeds and plant breeding from farmers and fattening Monsanto's profits"

(RAFI activist cited in Knight 1998a)

"Farmers will be forced to surrender control of their seed supply and the gene giants will ultimately dictate what the farmer grows, how to grow it, and where to sell it"

(Machipisa 1999)

Language synonymous with war and violence as in 'wrestling' and 'surrender' commonly accompanies these critiques of corporate control offered by Terminator Technology, underwriting the depiction of agribusiness as greedy and unfeeling dictators only interested in 'fattening' corporate profits.

Figure 13. Terminator Technology: Imagery of Corporate Greed



(Progressio 2007, p.2)

In contrast, industry portrayals of sterile seed technology counteract the notion of subversive control presented by the anti-biotech movement by presenting it as a progressive and transformational technology which offers "exquisite control of how plants respond", consistent with Nature-Enhancing Technology (director of the Donald Danforth Plant Science Center cited in Feder 1999).

Terminator Technology's seed-level focus results in important parallels with Agroecology, which harnesses the symbolic power of the seed. The frame juxtaposes the 'natural' and 'unadulterated' seed which has the inbuilt capacity to perpetually reproduce with the 'suicidal tendencies' of 'terminator seeds'.

> "Terminators might spread to other plants, which may also commit suicide"
>
> (Machipisa 1999)

> "Agro-chemical giants have been patenting dozens of genetically engineered 'terminator' seeds which are programmed to kill their own embryos so they cannot produce next year's crop"
>
> (Woolf & Lean 1999)

The sense of otherness created by exposition of this unnatural tendency is further emphasised through the Terminator metaphor. A seed which is 'programmed to kill' is reminiscent of the apocalyptic *Terminator* film in which humanity's survival depends on thwarting a cyborg assassin in human disguise – a clear case of technology running amok. In this light, the "complex technology" delivered through "a package that is as old as agriculture" described by Monsanto takes on a new and subversive tone (Verfaillie 2000).

Terminator Technology effectively draws upon Agroecology's portrayal of the seed to make its contrast, emphasising the "deliberate transformation of the seed from a renewable self-generative resource to a non-renewable patented commodity" (Navdanya 2012, p.324).

> "In most cultures and for most people, seeds are synonymous with life, fertility and growth. Terminator technology is in complete contradiction to these fundamental values"
>
> (UK Working Group on Terminator Technology 2006, p.2)

Interestingly, these more nuanced arguments predominantly appear in later publications which emerged as sterile seed technology threatened to resurface, suggesting that strategic elaboration of Terminator Technology developed over time. Here the frame is presented in a more consolidated form, evidenced by the concise and convincing convergence of several key anti-biotech frames including Agroecology, Food Sovereignty and Agropoly.

> "'Terminator' technology to produce sterile suicide seed that cannot reproduce is an assault to the fundamental nature of seed as the source of reproduction of life and to the fundamental freedom of farmers. The introduction of such traits is designed to create a monopoly on the seed and food of the world and must be banned on a global level"
>
> (International Commission on the Future of Food and Agriculture 2006, p.22)

Responses to the claims of Terminator Technology came predominantly in the form of media statements from the USDA, which openly declared its intentions to "protect American technology" and make the U.S. "competitive in the face of foreign competition" (USDA spokesperson cited in Vidal 1998). The argument in favour of sterile seed technology was premised on advancing the spread of agricultural biotechnology and protecting investments, reflecting corporate interests.

> "The goal is to increase the value of proprietary seed owned by US seed companies and to open new markets in second and third world countries"
>
> (USDA spokesperson cited in Vidal 1998)

The openly profit-focused nature of these statements played directly into Terminator Technology's depiction of sterile seed technology as a dangerous tool designed to overcome "nature's frustrating ability to continually reproduce" which "became an obstacle to business, whose *raison d'etre* - profit - is dependent on supply and demand" (Berlan & Lewontin 1999). Furthermore, the explicitly U.S. centric motives on display served to undermine the claim that the technology would be accompanied by a broader set of societal benefits. The USDA's communications had a strong win-win theme, linking American commercial success with positive impacts for farmers in developing countries whose access to improved plant varieties could lead to increased crop yields.

> "We think in the long run this will benefit farmers, and they will have access to many more varieties"
>
> (USDA cited in Anderson 1998)

The potential benefits for farmers in the developing world not only sound like an afterthought secondary to commercial interests, but appeared highly questionable next to Terminator Technology's portrayal of a product that would disempower farmers, remove their right to save seed, increase indebtedness, and threaten biodiversity through contamination.

Monsanto's communications, though generally less bullish than the USDA's, were at times patronising, defensive and dismissive of the public's fears about so-called Terminator technology (Schurman 2004).

> "Monsanto spokesman Phillip Angell observed "If your goal is to demonize a technology, that's a great name" [saying] people react as they do because the technology "is new and frightening to them and has a terrible name". He argued that rather than taking away choices, the system can provide people with

> protection from pests, resistance to drought and benefits unavailable in countries where companies won't operate without patent protection. “This is an enabling technology that can leapfrog barriers that may take years to overcome””
>
> (Lambrecht 1998a)

The statement seeks to undermine the claims of the anti-biotech movement through mis-representation. Angell implies that fear of technology is preventing progress and the potential benefits it might bring, reminiscent of the ‘Luddite’ metaphor characteristic of the Missed Opportunities frame. In doing so, he distracts from important concerns regarding the process and implications of sterile seed technology raised by its opponents. In a manner consistent with Nature-Enhancing Technology, Angell’s statement appeals to principles of scientific knowledge and technological progress, which can only bring their benefits if proper patent protection is offered. The ease with which sterile seed technology can help ‘leapfrog’ barriers to progress suggests an irresistible speed and efficiency. Whilst opponents of sterile seed technology deride this sort of “economics-driven impatience with nature” (Berlan & Lewontin 1999), Angell’s implication is that time is of the essence. The fact that these barriers might otherwise ‘take years to overcome’ conveys a need for pragmatism given the imminent challenge of global food insecurity.

Monsanto deployed a strategy central to the Nature Enhancing Technology frame which uses claims of ‘substantial equivalence’ in an attempt to allay safety concerns and circumnavigate inconvenient regulation. Asserting that sterile seed technology was “not very different from hybrid crops” (though apparently different enough to constitute a patentable innovation), Monsanto’s spokespeople sought to link the controversial new technology with one already familiar and widely accepted (cited in Vidal 1998). In this way, sterile seed technology could gain legitimacy by association with hybrid crop technology. In this case, however, the strategy was clearly ineffective given that the technology was considered sufficiently different to warrant enquiries and bans by the likes of the UN and CIGAR.

The arguments in favour of sterile seed technology failed to crystallise into a clear and convincing issue-frame that could effectively promote the technology whilst simultaneously allaying societal concerns. Though Monsanto’s apparent abandonment of sterile seed technology seemed like a victory to the anti-biotech movement, activists were quick to acknowledge that it was only a small one, labelling it an “empty gesture”

designed to “redress the balance” after much bad press (FOE campaigner cited in The Herald 1999). Indeed, the industry’s mistakes had been costly and the combination of bad press, low public opinion, closing doors across Western Europe and poor financial performance left Monsanto with few options but to change its strategy.

Key Event #2: GM Food Aid

Contextual Overview

A new era in biotech industry communications was marked by the formation of AfricaBio and the Council for Biotechnology Information, new industry and stakeholder alliances which shared the objective of improving the public image of agricultural biotechnology (Schurman 2004). At the Farm Journal Conference in Washington DC, Monsanto’s CEO Hendrik Verfaillie issued an apologia acknowledging the company’s failure to engage effectively with the public on the issues raised by agricultural biotechnology and announced the ‘new Monsanto pledge’ promising, among other things, not to pursue sterile seed technologies (Verfaillie 2000). The pledge marked the beginning of a much more nuanced communications strategy, and made specific commitments relating to dialogue, transparency, respect, sharing, and delivering benefits. Meanwhile, the Cartagena Protocol on Biosafety to the CBD, an international agreement on the safe use of biotechnology, had been adopted by the UN and was awaiting ratification by member countries (CBD 2018).

As these developments were unfolding, questions regarding GM food aid began to emerge in the media as it was revealed that at least 30% of food aid distributed by USAID was likely to be genetically modified (Walsh 2000). The anti-biotech movement was swift to respond, condemning the US for treating Africa as “the dustbin of the world” (Biowatch spokesperson cited in Walsh 2000). In June 2000 the first documented complaint about GM food was registered in India and in September, Consumers International Africa wrote to President Clinton and UN Secretary General Kofi Annan to ask for an inquiry into unlabelled GM food aid shipped to Africa (FoE 2003a). The situation quickly escalated when in the same month a variety of GM maize not approved for human consumption known as ‘StarLink’ was found in the US food supply, raising concerns that unapproved maize may also have contaminated shipments of food aid. These fears were confirmed when food aid sent to Bolivia,

Nicaragua and Guatemala were found to be contaminated with 'StarLink' and other unapproved varieties of maize (FoE 2003a).

In 2002 a severe food crisis took hold in Southern Africa, and the UN WFP predicted that a million metric tonnes of food aid would be required to meet the need (Weiss 2002). The first shipment, a mix of conventional and biotech varieties of corn, was rejected by the Zimbabwean government on the grounds of concerns over genetic contamination and intellectual property issues, causing the debate to suddenly escalate. The controversy played out publicly at the highest levels. The Bush administration spoke out strongly against opposition to agricultural biotechnology, claiming that it was undermining efforts to fight famine in Africa (Sanger 2003). Meanwhile, the anti-biotech movement accused the US government of 'playing with hunger', using famine to "force GM food onto the world market either by stealth or bullying" (FoE campaigner cited in Edwards 2003).

At the World Summit on Sustainable Development (WSSD) in August 2002, the World Bank announced the launch of the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD), an initiative that would bring together public and private sectors to assess the opportunities and risks of biotech crops, particularly for the developing world. Also at the WSSD, the US announced the launch of its own Collaborative Agriculture Biotechnology Initiative, a 10 year $100 million programme to help the developing world reap the benefits of agricultural biotechnology. Questions about GM food aid were clearly situated in a much wider debate about the role of agricultural biotechnology in the developing world and the agendas of the corporate, political and civil society actors influencing its trajectory.

In August 2002 the FAO asked African governments not to ban GM food aid on the basis that it was unlikely to present a risk to human health. However, SADC Heads of State responded by affirming the right of member countries to accept or reject GM food aid, and in October 2002 Zambia joined the ranks of vocal objectors. To Bush aides, Zambia's rejection was "stark proof that Europe's anti-biotech crusade has hit home even in countries critically short on food" (King 2002). In May 2003 the Bush administration eventually brought a suit against the EU to the WTO, claiming that the EUs 5 year *de facto* moratorium on the approval of new GM foods violated WTO terms, and that this had misled African nations into rejecting much-needed GM food aid. In 2006 the WTO ruled in favour of the US, setting a date for the EU to lift the moratorium

or risk facing sanctions. However, in reality there was nothing in the ruling forcing the EU to revise its regulatory system (Peterson 2010).

Policy developments demonstrate several important successes achieved by the anti-biotech movement. Though GM food aid continued to be an issue in the coming years, the WFP adopted an official policy on donations derived from biotechnology including commitments to comply with national import policies and to adapt to the changes that national governments imposed as they ratified the Cartagena Protocol (WFP 2003). The SADC Advisory Committee on Biotechnology and Biosafety recommended that member states mill all GM grain before accepting it as food aid. Furthermore, after several years lobbying national governments to ratify the agreement, the Cartagena Protocol finally came into force in September 2003 (FoE 2001). The anti-biotech movement celebrated this as "the first international agreement which clearly says that Genetically Modified Organisms (GMOs) are different and therefore require a different treatment" (FoE 2003b), providing the basis for further favourable policy developments.

Issue-Frame Analysis

The frame that dominated the GM food aid debate is named The Back Door to Africa after the commonly used metaphor which expresses the anti-biotech movement's claims that GM food aid is used as a way for multinational agribusinesses to infiltrate African markets during moments of vulnerability.[17] Friends of the Earth was the primary sponsor of this frame, as is demonstrated through its emergence in a series of press releases from the organisation early on in the controversy. However, as with Terminator Technology, the frame was developed and deployed by many other anti-biotech organisations with complementary interests and objectives. The frame takes a slightly different form depending on the particular agenda of the organisation deploying it. For example, the ACB's Africa focus meant that the organisation was particularly adept at identifying relevant and up-to-date exemplars with which to embellish the frame. The Back Door to Africa gained much traction in the media in spite of the moral intensity of the 'life and death' arguments presented by its main

[17] See Appendix D for the frame's signature matrix and appendix E for illustrative quotes demonstrating the framing and counter-framing in action.

opposition, the Bush administration. Initially the frame's primary audience was the general public as the anti-biotech movement built momentum by raising awareness of developments around GM food aid when they initially began to unfold. Over time the focus shifted to policymakers and political decision makers as the movement sought to translate that public momentum into tangible change. Both FoE and ACB produced reports specifically addressing GM food aid which presented clear policy recommendations, pursuing the organisations' shared objective of securing a regulatory framework that would prevent multinational agribusinesses from using famine to advance commercial interests.

> "The WFP should put in place mechanisms that enable it to respond appropriately to situations where recipient countries impose restrictions on the acceptance of GM food aid"
>
> (ACB 2004a, p.15)

The Back Door to Africa has much in common with Agropoly, emphasising as it does the increasing consolidation of corporate power taking place in world food systems, and depicting the US government as a mouthpiece for the interests of multinational agribusiness. The 'corporate colonialism' metaphor associated with Agropoly is a feature of the frame, often deployed in conjunction with the more context-specific metaphor of Africa as a 'dumping ground' for surplus GM food.

> "Africa will not allow itself to become a dumping ground. This is another form of colonisation, first through slavery, then through economic colonisation and now through the control of food and medicine"
>
> (Earthlife Africa, cited in SABC News 2002)

> "The provision of food aid especially by the US is intimately tied to the disposal of highly subsidised surplus food, on the planet's poorest and vulnerable people"
>
> (ACB 2004b)

The terms 'dumping' and 'disposal' are most commonly associated with waste, conveying the notion that GM food is 'rubbish' unfit for consumption. In conjunction with the language of 'colonisation', these terms help construct an image of exploitation in which considering itself superior in some way, the coloniser assumes the right to offload its waste on the colonised. Depicting the intended recipients as 'poor' and

'vulnerable' emphasises the theme of exploitation, invoking a sense of injustice which serves to construct the coloniser as a common enemy with the audience (Burke 1984).

Interestingly, the 'human guinea pigs' metaphor used by the Frankenfood frame appears in media coverage of the GM food aid debate, indicating that the language which proved so effective in resisting agri-biotech in the late 90s was still at work in the public consciousness when the GM food aid controversy began to escalate.

> "…hungry as we may be, we cannot afford to be turned into guinea pigs"
>
> (The Nation 2002)

> "There is nothing to discuss [with US officials]… You cannot use the Zimbabwean population as guinea pigs"
>
> (Zimbabwean minister cited in The Herald 2002)

Though few official CSO communications appear to use the metaphor directly[18], both FoE and ACB reproduce a British scientist's comment condemning GM food aid as "a massive human experiment" to much the same effect (FoE 2003a, p.10; ACB 2004a, p.8). Describing GM food aid as a 'massive human experiment' conducted on 'human guinea pigs' builds on the metaphor of Africa as a dumping ground for its colonisers. Once more the theme of exploitation arises, depicting the colonised 'guinea pigs' as somehow less valuable or less human in the eyes of the coloniser, and thus as a suitable test-subject for (ostensibly) unsafe GM food.

In response, the counter-framing presented by the opposition claimed that "Americans have been eating biotech for years with zero ill effects on health", implying that there was nothing 'experimental' about eating GM food (Mallaby 2002). The counter-framing depicted European leaders, who were allegedly fuelling unfounded fears by maintaining a *de facto* moratorium on GM approvals, as weak and antiscientific. Consistent with the Missed Opportunities frame, the 'Luddite' metaphor was adopted to portray an ignorant people who fear technology and progress, implicitly appealing to principles of sound science and rationality.

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[18] FoE and ACB's less direct use of the Frankenfood metaphor is indicative of a change in the nature of the discursive opportunities offered by public discourse at the time. Now distanced from the public food scares of the 90s, and with the metaphor being used by the opposition to deride the anti-biotech movement, the metaphor, if not the whole Frankenfood frame, began to lose its resonance.

> "I think the European view on this is Luddite… It is immoral that people in Africa are not being supplied with food because people have invented dangers about biotechnology"
>
> (US trade representative cited in Brandon 2003)

The implication is that though Europeans may have the right to make misinformed decisions based on 'invented dangers' for themselves, fuelling the concerns of nations experiencing famine is morally unacceptable. In this way, the counter-framing sought to portray anti-biotech activists and European leaders as responsible for starvation in Africa, constructing GM resistance as a luxury of privileged Europeans.

> "It is disgraceful that instead of helping hungry people, these individuals and organizations are embarking on an irresponsible campaign to spread misinformation and create an atmosphere of fear, which has led countries in dire need of food to turn away safe, wholesome food"
>
> (USDA Agriculture Secretary cited in Gersema 2002a)

> "Our partners in Europe are impeding this effort… they have blocked all new bio-crops because of unfounded, unscientific fears"
>
> (President Bush cited in Sanger 2003)

The involuntary nature of the 'human experiment' depicted by The Back Door to Africa raises the question of choice, which is a dominant theme of the frame. Like Agroecology, which constructs the 'choice' offered to farmers by agri-biotech as an illusion, The Back Door to Africa adopts the notion of 'false choice' to dispel the myth that nations must choose between accepting GM food aid and its associated risks or succumbing to starvation.

> "Zambia, Zimbabwe and Malawi, all of which are suffering from the current famine, have been told by USAID that there is no option but to make use of GM crops from the United States. This is simply untrue"
>
> (Monbiot 2002)

Figure 14. 'False Choice' Reproduced in the Media



(Gado Cartoons, January 19th 2005)

What the anti-biotech movement describes as 'false choice' can be understood as strategic rhetoric in action, whereby the pro-biotech frame sponsors construct the impression that GM food aid is the only solution to famine through the use of a categorical syllogism. Take, for example, the following two statements made by USAID officials:

> "We want to help in this food emergency but we don't have a substitute (for the GM corn) and the volumes are not available anywhere else"
>
> (cited in Associated Press International 2002)

> "The Bush administration is not going to sit there and let these groups kill millions of poor people in southern Africa through their ideological campaign"
>
> (cited in Agence France Presse 2002)

Considered together, these statements allude to the following argument:

i) *Without food aid people will starve to death*

ii) *There is insufficient non-GM food aid available to meet the current need*

iii) *Without GM food aid people will starve to death*

The desired effect of this style of argumentation is to construct a sense of inevitability whereby GM food aid is deemed the only solution to famine, thus closing the door to alternatives that may have been considered had the argument been based on different premises. The second premise, for example, is based on the assumption that only commoditised crops constitute food aid. This assumption is directly challenged by FoE and ACB, which argue that 'traditional' crops should play a greater role in famine relief.

> "WFP and all donors should seek to guarantee and support local purchases of staple foods in recipient countries. Traditional crops such as cassava, groundnuts, beans should be included within the food deficit calculations and if surpluses available at the local and regional level should be also used as food aid"
>
> (ACB 2004a, p.15)

> "We have traditional foods in abundance. I do not know why there is this maize mania when some of our provinces do not even grow maize, traditionally"
>
> (Zambian Minister of Agriculture cited in FoE 2003a, p.11)

This prognostic framing is reminiscent of Agroecology and Food Sovereignty, emphasising the value of the local and traditional through which communities are empowered and dependency is minimised.

A significant contributing factor in The Back Door to Africa's potency was the considerable level of reproduction of US agency communications stating who the primary beneficiary of US food aid should be.

> "The principal beneficiary of America's foreign assistance programs has always been the United States. Close to 80% of the USAID contracts and grants go directly to American firms. Foreign assistance programs have helped create major markets for agricultural goods, created new markets for American industrial exports and meant hundreds of thousands of jobs for Americans"
>
> (USAID official cited in Monbiot 2002)

In many ways, this kind of communication served to undermine the Bush administration's philanthropic claims and reinforce the argument that GM food aid was in fact the perfect 'back door to Africa'. Though the Bush administration had presented a more compelling argument in favour of GM food aid than had been achieved during the sterile seed technology debate, it failed to effectively counteract the damaging effects of The Back Door to Africa frame. The socio-political context of the debate undoubtedly influenced the outcomes of this framing contest. With public opinion still recovering from the agri-biotech industry's misguided communication strategies of the past, and a strong emergent political discourse on biosafety, the argument in favour of GM food aid promoted by the US government proved relatively ineffective. However, behind the scenes the agri-biotech industry was beginning to pursue a different strategy.

Direct communications from multinational agribusinesses such as Monsanto were almost entirely absent from the GM food aid debate. This is unsurprising given that they were distanced from the food aid distribution process by agri-distributors such as Cargill and government departments such as USAID and USDA. Though industry stayed silent on the issue of GM food aid, tracing Monsanto and the ISAAA's communications over the course of the debate reveals that a different strategy was beginning to emerge. Monsanto's reports show that the company was working hard to open up new markets. For example, the 2001 annual report expresses disappointment that the company "didn't obtain approval to import Roundup Ready corn into Europe... Gaining these approvals will be key steps toward global acceptance of biotechnology" (Monsanto 2001, p.4). Similarly, the subsequent report describes 2002 as "a difficult year for the agricultural industry" and "a major disappointment for our shareowners" (Monsanto 2002a, p.2). Having fallen short of earnings projections, partly because of regulatory issues preventing growth, the company claims that it will "pursue aggressive plans to maintain or increase our leadership edge" and that it is seeking "new approvals for Monsanto traits in markets around the world" (Monsanto 2002a, p.8). Unpacking the company's strategy, the report goes on to say that this will be achieved by building support through industry coalitions and reaching out to governments.

At the same time, a much more prevalent focus on engagement with the developing world becomes evident, both in language and in practice. Beginning with the 'Monsanto pledge', this new focus is expressed through a variety of initiatives such as the International Rice Genome Sequencing Project, a commitment to the World Bank's HarvestPlus initiative, support for the 'golden rice' and 'golden mustard' initiatives to mitigate vitamin A and beta-carotene deficiencies, and a focus on female empowerment through agri-biotech. A similar trend is evident in the communications of the ISAAA, which directed much of its energies to reporting on the apparent perpetual growth in uptake of agricultural biotechnology and its associated benefits. In its annual *Global Review of Commercialized Transgenic Crops*, the potential for higher yields in developing countries received ever-increasing attention. Another notable publication was the organisation's strategic plan for 2001-2005 entitled *Poverty and Technology,* which details the ISAAA's mission to "contribute to poverty reduction through sustainable increases in crop productivity in the developing world", arguing that "it is the world's poor who will benefit most from increased yields, reduced pollution, and improved nutritional characteristics of new crop technologies" (ISAAA 2002, p.5).

This new developing world focus was characterised by the steady elaboration of core pro-biotech frames along two key lines. Firstly, linking frames more closely with the international development agenda as represented by multilateral organisations, specifically regarding global food security. The Farmers Know Best frame provides a clear example of this elaboration in action. Prior to the mid-2000s Monsanto's reports referred almost exclusively to the knowledge and requirements of American farmers. However, over the course of the mid to late 2000s the reports increasingly incorporate content relating to farmers in developing country contexts. Changes in the Farmers Know Best frame reflect this development. For example, the themes of empowerment and choice come to the fore, and are increasingly demonstrated through frame elements that highlight Monsanto's attention to the developing world, such as the exemplar of improved seed choices for farmers in developing countries, and images depicting the thriving crops resulting from this. Secondly, through the appropriation of language traditionally associated with the anti-biotech opposition. This development is evident in several frames, but is most apparent in Together for Sustainability. Over the course of the 2000s, the frame was steadily furnished with language traditionally associated with the anti-biotech movement's concept of sustainability which advocates alternatives to industrial agriculture. Adopting such language, Monsanto was able to reconfigure concepts like 'soil health' and 'biodiversity' so that they served its own interests rather than undermining them. Such language therefore became normalised and largely neutralised in terms of its efficacy to the opposition.

Having stayed silent on the contentious issue of GM food aid, allowing its political advocates to take up the cause, Monsanto and its industry allies were afforded more space to focus on constructing credible and persuasive frames to promote agricultural biotechnology as a response to the issue of global food security. Perhaps this is what was meant by the following declaration in Monsanto's 2003 Annual Report.

> "We are now focusing on the processes we can affect rather than waiting for rulings which are often delayed and disappointing. This is something we will continue to do. We will be proactive, rather than reactive to legal and political manoeuvres"
>
> (Monsanto 2003a, p.2)

In effect, then, whilst the Bush administration was busy publicly disputing the anti-biotech claims of the opposition, Monsanto and the ISAAA were pursuing a new two-pronged communications strategy. Firstly, linking its strategic objectives with the

international development agenda, specifically regarding global food security. Secondly, mirroring the anti-biotech movement's communications so as to minimise space for discursive struggle. In taking a more long-sighted approach, Monsanto was in effect constructing more stable opportunities for the success of its future issue framing efforts.

Key Event #3: World Food Crisis

Contextual Overview

Towards the end of 2007 signs of political concern over a spike in food prices started to emerge. Prices had started to rise in the early 2000s but began to climb steeply from 2006 due to "structural changes in supply and demand" such as rising oil prices, changing consumer preferences, and increasing demand for biofuels (Wiggins & Levy 2008). By early 2008 what is now commonly referred to as the 'world food crisis' was well underway. In April 2008, the IAASTD published its report on the potential of agricultural biotechnology, asserting that "assessment of the technology lags behind its development, information is anecdotal and contradictory, and uncertainty about possible benefits and damage is unavoidable" (2009, p.8). The report seemed to come as a blow to the biotech industry, suggesting that a narrow focus on industrial agriculture and insufficient attention to inequality, ecology, and issues of conflict were largely to blame for food insecurity, making a strong case for agroecological approaches to food production (Vidal 2008). Unsurprisingly, these findings were eagerly received by CSOs, validating many of the claims they had long been struggling to make heard in spheres of social and political influence.

Whilst the anti-biotech movement was welcoming the IAASTD report, the UN was busy establishing a high-level taskforce and organising an international conference to address the ongoing crisis. At the conference, which took place in June 2008, UN Secretary General Ban Ki-moon called for a 50 percent increase in global food production by 2030 (Ki-Moon 2008). Though the findings of the taskforce shared by the Secretary General included a variety of actions to "improve vulnerable people's access to food" including social protection programmes, improving rural infrastructure, and adjusting trade and taxation policies, these recommendations were not reproduced with the same enthusiasm as was the statement calling for increased food production (Ki-Moon 2008). The call was reproduced most enthusiastically by industry

to give credibility to the Inevitability frame and its core assumptions. Indeed, the conference aided industry efforts to define the crisis in terms of insufficient production, legitimising the response of increasing productivity through industrial agriculture, and specifically biotechnology.

The impact of the IAASTD report was therefore severely diluted. In the context of serious public and political concern over global food security, with heated debate over the appropriate response playing out in the media, the voices of those championing the report were largely drowned out. Consequently, the UN task force formed to address the food crisis advocated reforms in line with a 'New Green Revolution'[19] based on an agricultural paradigm more consistent with the industrialised rural agriculture advocated by multinational agribusiness than the agroecological approaches promoted by the report (ACB 2008).

On the 4th of June 2008, the day after the Secretary General's statement, Monsanto announced its 'Sustainable Yield Initiative', "a three-point commitment to help increase global food production in the face of growing demand, limited natural resources and a changing climate" (Monsanto 2008b). The UN conference on the world food crisis, and the prevailing recommendation of increased production, opened up both new and existing institutional access points for industry to target. Consequently, in the wake of the world food crisis the focus on African agriculture intensified, resulting in the formation of a number of new initiatives. The New Vision for Agriculture, for example, was instigated by World Economic Forum partners including Monsanto, promoting "business-led and market-based solutions" to agricultural challenges (Monsanto 2014c). This included an initiative called GrowAfrica which sought to "accelerate investments and transformative change in African agriculture" (Monsanto 2014c). In May 2009, the meeting of the African Union to discuss harmonisation of biosafety policy in Africa provided a further opportunity to push for policies that would favour industry interests.

[19] The term 'New Green Revolution' was popularised after a speech by then UN Secretary General Kofi Annan who called for a 'uniquely African green revolution' along the lines of those that had led to increased agricultural production in Asia and Latin America. Critics of the approach claim that it promotes large-scale industrial farming which fails to account for important social, economic and environmental costs (GRAIN 2007).

> "Although there is strong political will within the AU to protect African biodiversity and society, powerful industry lobbyists are using the harmonisation process to build capacity and facilities for the advancement of GMOs on the continent, thereby paving the way for a corporate-friendly legislative environment"
>
> (ACB 2009, p.3)

The world food crisis had paved the way for Monsanto and its industry allies to pursue their common agenda of opening up new opportunities for the advancement of agricultural biotechnology across the African continent.

Issue-Frame Analysis

During the debate around GM food aid a pro-biotech line of argumentation began to emerge suggesting that Africa risked being 'left behind' in agricultural innovation and productivity if it succumbed to Europe's scaremongering. In the context of the world food crisis, this argument crystallised into a coherent and convincing frame, namely Africa – Don't get Left Behind[20]. The frame was characterised by a sense of urgency, arguing that biotechnology and industrial agriculture are the key to Africa's future prosperity and to global food security. The frame's main sponsor was the ISAAA. Though Monsanto also deployed elements of the frame, it adopted a less aggressive approach, perhaps in the knowledge that the ISAAA provided a mouthpiece for industry where more 'radical' views could be expressed without the risks entailed by a customer-facing organisation. Directed primarily at policy makers, with some documents specifically targeting African decision makers, the main purpose of the frame was to convince its audience that agricultural biotechnology has the potential to increase crop yields and improve African livelihoods. However, if resistance to biotechnology continues across the continent, Africa will miss the opportunity for its own green revolution and be left behind as other nations modernise.

The frame derives its name from the key catch-phrase of 'lagging behind' or being 'left behind'. This signature element conveys a message much akin to that of the Missed

[20] See Appendix D for the frame's signature matrix and appendix E for illustrative quotes demonstrating the framing and counter-framing in action.

Opportunities frame identified in the previous chapter, which portrayed agricultural biotechnology as an underutilised response to the issue of global food security.

> "The realities of agriculture in Africa make the case for urgent use of GM crops. However, the region is seriously lagging behind in the adoption and use of the technology while other regions of the world are reaping enormous benefits from it"
>
> (ISAAA 2008a, p.2)

To describe Africa as 'lagging behind' suggests that the continent is losing the race for development, an impression which is emphasised by the context of the world food crisis. The catch-phrase creates an image of Africa as being isolated from the pack, as well as from the benefits of agri-biotech. There is a sense of shame implicit in the statement, presenting the decision not to adopt the technology as a costly and avoidable error. The use of hyperbole exaggerates this effect, whereby the case for GM crops is 'urgent', Africa is 'seriously' lagging behind, and the benefits it's missing out on are 'enormous'.

In order to emphasise the theme of missed opportunities, Africa – Don't get Left Behind deploys exemplars of nations which have allegedly prospered from the application of agri-biotech, contrasting them against those which have not.

> "In Africa, South Africa is the only country that features on the global map with respect to commercial adoption of GM crops… Farm income gains from GM crops between 1998 – 2006 in the country amounted to US$ 150 million"
>
> (ISAAA 2008a, p.1)

> "The GM-free stance and policies in such countries may deny farmers the opportunity to harness and maximize potential benefits of the technology such as increased productivity, enhanced environmental sustainability and reduced expenditure on agro-chemicals and other crop protection costs"
>
> (ISAAA 2008a, p.2)

The phrase 'features on the global map' singles out South Africa as the sole noteworthy African nation. By extension then, African nations which have not commercialised GM crops do not feature on the global map; they are invisible, insignificant. Through the artistic proof of *pathos,* farmers in such nations are depicted as disempowered by their inability to access the opportunities presented by agri-biotech. The notion of a denied

opportunity is emotive, inviting the audience to sympathise with the disempowered farmer and so enhancing their receptiveness to the argument. That the opportunity was not only missed but actively denied serves to construct the responsibility of the denier. In this case 'the GM-free stance and policies' are to blame, once again shaming the decision makers.

Exemplars are sometimes deployed at the individual level rather than the national, where storytelling results in a more personal and relatable narrative. Here, in contrast to those farmers being denied the benefits of agri-biotech, those able to utilise it are depicted as thriving.

> "Chief Advocate Mdutshane, a highly respected chief of Ixopo, whose native language is Xhosa, from the Eastern Cape of South Africa says that 120 emergent poor farmers in his area increased their yields over conventional maize by up to 133% with Bt maize. Yields increased from 1.5 tons per hectare to 3.5 tons per hectare by eliminating the stalk borer, which damaged up to 60% of their crops. They call the Bt maize, "*iyasihluthisa*", it is Xhosa for "It fills our stomachs." Mdutshane said "For the first time ever they produced enough food to feed themselves"
>
> (ISAAA 2007, p.iv)

Once again, quantifiable yield increases present a clear rationale in support of agricultural biotechnology, but this time in the context of the improved livelihoods of real people. The account constructs the subject as other. The description of Chief Advocate Mdutshane emphasises cultural and linguistic differences. However, the audience is allowed special insight into this unfamiliar world through the trustworthy account of a 'highly respected chief'. Through translation we learn that the 'poor farmers' of Ixopo have adopted a new name for GM maize, meaning 'it fills our stomachs'. In this way Bt maize is ascribed an almost mythical status in that it has allowed these farmers to feed themselves 'for the first time ever'. The imagery employed here is powerful, invoking a picture of a people whose previously empty stomachs are now filled thanks to the GM maize through which they have been empowered.

Africa – Don't get Left Behind works to deconstruct accusations of agri-colonialism, painting a picture of agricultural biotechnology as a form of empowerment actively chosen by forward-thinking Africans. This is achieved in a variety of ways, such as

through reproduction of remarks made by African leaders affirming the potential of agri-biotech.

> "Biotechnology is one of the frontiers of agricultural and industrial research in the world today and Uganda should not be left behind in these new technological advancements"
>
> (Ugandan State Minister of Finance cited in ISAAA 2009b)

Perfectly reproducing some of the core tenets of the frame, this quote serves to demonstrate that African leaders don't want to be 'left behind' and are on board with biotechnology. The theme of African empowerment is also promoted through the use of images. Visualising African involvement in the development of agricultural biotechnology in this way implies that rather that rather than having biotechnology inflicted on them, many Africans are choosing to be part of the process. This helps to construct a sense of African innovation for African people, once again dismantling allegations of colonialism.

Figure 15. African Scientists Conducting Field Trials & Working in a Biotech Lab



(ISAAA 2009b, p.10 & 26)

> "Over five decades ago, the world experienced a striking breakthrough in Agriculture, the Green Revolution, which saved at least a billion lives from starvation in Asia and Latin America. Africa, then largely fed through subsistence farming, missed that boat and the consequences have been felt for years since. With the new era of advanced agricultural technologies, more specifically modern biotechnology, Asia, Latin America and the West are leading the way again, yet Africa, with over 200 million starving people, is

> certainly in greater need. What's more, up to 80 percent of Africa's population depends on agriculture, but per capita productivity remains the lowest in the world as a result of, among other factors, minimum application of modern scientific and agricultural technologies"
>
> (ISAAA 2009b, p.1)

The line of argumentation followed by Africa – Don't get Left Behind points to a clear prognosis, constructed on the diagnostic foundation of Missed Opportunities and Inevitability. The metaphor of 'missing the boat' performs a similar function to the catchphrase of 'lagging behind', highlighting how Africa failed to seize the opportunity presented by the Green Revolution. In keeping with Nature-Enhancing Technology, the frame appeals to principles of scientific knowledge and technical progress, arguing that having 'missed the boat' the first time round, Africa must be ready to get on board with 'the new era of advanced agricultural technologies' which can propel it forward. The implication is that Africa is stuck in the past. Indeed, in Monsanto CEO Hugh Grant's speech at the 2007 World Food Prize Symposium, he stated that "Africa has gone backward", arguing that African nations will never be able to tap their full commercial potential unless they build a more enabling regulatory environment (cited in Jackson 2007). Fuelled by the mounting sense of inevitability in light of the world food crisis, the frame presents a clear rationale for ameliorative action: a new Green Revolution for Africa.

The world food crisis put a spotlight on the issue of global food security and provided a context in which Monsanto could deploy and consolidate the frames it had been diligently constructing and elaborating over recent years. By this time the nature of public food security discourse, and therefore the stable discursive opportunities it provided, had changed beyond recognition. For example, the Frankenfood frame historically deployed by Monsanto's framing opponents had lost its credibility. The frame was now dissonant, and had essentially been flipped against the interests of its original sponsors. In the context of this evolving public discourse, the core claims of Inevitability gained credence in the strength of increasing concern over securing a sufficient global food supply. The Together for Sustainability frame also crystallised around the crisis, evidenced through a renewed emphasis on partnership as Monsanto acknowledged "we can't do it alone", extending an invitation to organisations from different sectors to take on the shared problem of global food security (Monsanto 2009, p.8). During this time, anti-biotech movement focused much of its efforts on direct

rebuttal of industry claims regarding the increased production, improved performance, and environmental benefits of agricultural biotechnology. However, in spite its best attempts, the movement failed to gain sufficient momentum to prevent popular international support for the idea of a new Green Revolution in Africa and its associated policy developments. Much of the language traditionally associated with the anti-biotech movement had by now been successfully appropriated by Monsanto and its industry allies. This had served to neutralise anti-biotech frames, blurring the boundaries between pro and anti-biotech discourse.

The world food crisis presented a prime opportunity for the biotech industry to gain increasing support for the role of agri-biotech in responding to the issue of global food security amongst political decision-makers. The crisis acted as a launch-pad for Monsanto's advance on 'the final frontier' of the African continent, as evidenced in the subsequent push for the harmonisation of biosafety policy across Africa (ISAAA 2009b). The ISAAA goes so far as to claim that the crisis resulted in "a marked increase in the political will and support for biotech crops in the donor group, the international development and scientific community and from leaders of developing countries" (ISAAA 2009a, p.iv). Having appropriated much of the language of its opposition and successfully tethered its public communications to the international development agenda, Monsanto and its industry allies were able to effectively seize both stable and volatile discursive opportunities presented by the world food crisis.

Discursive Opportunity Analysis

The selective nature of discursive opportunities means that frames which tap into the right vocabulary, principles and narratives resonate more than others with critical elements in the broader discursive environment (Ferree 2003; McCammon et al 2007). Whilst Friends of the Earth, the ACB, and the anti-biotech movement succeeded in elaborating dominant frames in response to sterile seed technology and GM food aid, Monsanto and its industry allies were more successful in responding to the world food crisis. The insights gained throughout the analysis develop current understanding of discursive opportunity in three main areas; i) how power and political agency affect the way organisations engage with discursive opportunities, ii) differences in the way organisations respond to stable and volatile discursive opportunities, iii) the role of discursive opportunity in the struggle for discursive space. In doing so, they represent

a novel contribution to the literature by providing a political agency perspective on framing which enables a more nuanced understanding of how discursive opportunities enable and constrain the framing activities of organisational actors with different interests and agendas. This represents a more dynamic view on public issue framing contests than is commonly found in the literature, capturing frame emergence and development over time, and providing fresh insights into how issues of power influence the outcomes of important public debates. The proceeding sections will introduce the insights gained in these three areas as they relate to the focal organisations, and will discuss two particular framing strategies; 'opportunity framing', and frame co-optation.

Friends of the Earth & the African Centre for Biodiversity

Unpacking the framing strategies at play over the course of the three key events brought to light a marked difference in the way corporations and CSOs engaged with stable and volatile discursive opportunities. Both Friends of the Earth and ACB showed a greater tendency to engage directly with volatile discursive opportunities deriving from important developments in the socio-political context than did Monsanto and ISAAA. The analysis demonstrates how the CSOs were quick to respond to windows of opportunity when they arose, providing compelling interpretive frames (Terminator Technology and The Back Door to Africa) through which to influence how the events were understood and responded to as they unfolded in the public domain. For example, Friends of the Earth's Terminator Technology frame was deployed in the early days of the sterile seed controversy, soon after RAFI had brought Monsanto's acquisition plans to light. Though the frame was relatively underdeveloped at this time, deployed primarily in short media releases, it was still quite robust, building on the strong foundation of Frankenfood. Rapid deployment of Terminator Technology successfully challenged the legitimacy of sterile seed technology, essentially blocking Monsanto's access to the marketplace.

The success of FoE's framing strategy speaks to the relationship between the timing and efficacy of framing efforts in response to volatile discursive opportunities, which are by definition only open for a limited and unknown period of time (Ferree et al 2002; McCammon et al 2007). Specifically, it suggests that successful framing in response to a volatile discursive opportunity is best achieved at the early stages of an unfolding issue or event when public opinion is highly charged, and when there is still

enough ambiguity around the issue to maximise the potential for shaping the way important concepts are understood. During these early stages, important decision makers may also be relatively uninformed about the issue; if policy makers are yet to form a firm opinion then timing is certainly of the essence.

The findings suggest that presenting a rapid response to volatile discursive opportunities was also important in terms of mobilising further resources required by the CSOs. Specifically, providing a swift and convincing interpretation of events served to open up discursive opportunities, attracting much-needed public attention to elevate the public importance of the issue, raising funds to finance a targeted campaign, and buying more time (i.e. keeping the window of opportunity open) whilst the organisations further developed the issue frame. The benefits of a swift response were particularly evident in the debate around GM food aid. The initial impetus provided by FoE's quick condemnation of GM food aid served to create enough controversy to open up the volatile discursive opportunity. This won time for the organisation and its anti-biotech allies to develop a fuller framing of the issues raised by the controversy, putting themselves in a strong position from which to respond to further developments as they unfolded. Indeed, when the issue resurfaced a couple of years after the initial controversy, The Back Door to Africa had been substantially developed, and was furnished with a wealth of persuasive devices to promote the organisations' preferred interpretation of the issue. This more nuanced issue frame is evident in both FoE (2003a) and ACB's (2004a) reports on GM food aid, demonstrating how the time afforded by FoE's initial bold statement enabled the organisations to develop a full and articulate account of the events as well as an informed set of policy recommendations. This served them well when an unexpected 'aftershock' occurred, and meant that they were in a position of frame readiness.

Monsanto and ISAAA

Both Monsanto and ISAAA stayed relatively silent in response to the issues of sterile seed technology and GM food aid. During both of these events the US government spoke out strongly in favour of agricultural biotechnology and in support of industry interests. This political support seemingly enabled the industry organisations to avoid the risks associated with unpredictable volatile discursive opportunities, knowing that their interests were represented. However, the unfavourable outcomes of these controversies for the agri-biotech industry, and the fact that anti-biotech frames

dominated public discourse around both these events, suggest that this strategy did not prove particularly successful. The indication is that political support does not equate to political agency. Indeed, in contemporary society a variety of actors and organisations compete with each other, and with governmental authorities, to influence the political system. As that "political system has become more complex and more fragmented, the opportunities to impact upon it have taken different forms" (Marchetti 2013, p.5). Given that political support alone is not sufficient to determine the outcome of a public issue framing contest, industry organisations must learn to read and respond to the opportunities presented by such a complex and fragmented system.

From the turn of the millennium a marked change in communications strategy saw Monsanto taking time to build up a repertoire of frames that broadly reflected the international development agenda, adopting and sometimes repurposing the popular language of food security. The slower, long-term approach to framing evident here was facilitated by the significant traditional power resources available to the company, including its political and institutional network, and the financial resources which enabled the company to invest in corporate-funded research and increasingly sophisticated CSR reports. Part of the long-term framing strategy included the appropriation of 'alternative' language traditionally associated with CSOs. Such language was already in use to a limited extent in official texts such as the ISTAAD report. Reflecting such language in its own communications, Monsanto was able to demonstrate its commitment to shared principles based on concepts such as sustainability, empowerment, and choice. However, as demonstrated in the previous chapter, the meanings implicit in the company's use of these concepts was substantially different from, and often directly opposed to, the meanings underlying the anti-biotech movement's use of them. By reconstituting the meaning of such concepts, Monsanto was able to repurpose language previously considered 'alternative' to better serve its own interests, and to appear responsive to its use in official channels. In doing so, the company was essentially creating stable discursive opportunities for its future framing efforts, whilst also neutralising the resonance of the opposition's frames.

Having normalised the use of 'alternative' language in its communications, Monsanto was in a stronger position from which to respond effectively to the world food crisis when it unfolded, deploying the robust core frames that it had been diligently constructing since the turn of the millennium. The 'Sustainable Yield Initiative', announced at the height of the crisis after Ban Ki-Moon's call for a 50% increase in food production by 2030, is a prime example of this. The initiative involves a commitment to

"develop better seeds", "conserve resources", and "improver farmers' lives" (Monsanto 2008b), and demonstrates the company's core frames, with the appropriated and repurposed language of the 'alternative', in action. Having discursively aligned itself with the international development agenda, and with emergent food security discourse specifically, Monsanto had effectively positioned itself as part of the solution to the problem, rather than part of the problem itself.

Whilst Monsanto's longer-term framing strategy had enabled it to present a robust response to the world food crisis, appealing to the stable discursive opportunities it had co-constructed, the ISAAA adopted a riskier strategy. Engaging with the volatile elements of opportunity offered by the crisis, the organisation successfully deployed Africa – Don't Get Let Behind in support of industry interests. In much the same vein as the anti-biotech movement had responded swiftly to sterile seed technology and the GM food aid controversy, the ISAAA did not delay in activating the opportunity through the release of a provocative policy brief in the early stages of the crisis (ISAAA 2008a). This move served to open up the opportunity, buying time in which to develop and hone the frame (ISAAA 2009b). This riskier strategy was arguably more feasible for the ISAAA given its position as a non-customer-facing organisation with less to lose in terms of legitimacy. The ISAAA therefore represented a suitable mouthpiece for industry interests.

Opportunity Framing

Opportunity framing, as introduced at the beginning of this chapter, was identified through the analysis as a process of context-specific elaboration of a core frame in response to a volatile discursive opportunity in seeking to provide a compelling interpretation of events as they unfold. Five key characteristics of successful opportunity framing are apparent.

i) Building on the foundation of a compelling core frame

In the case of each successful framing attempt in response to a volatile discursive opportunity, an existing core frame provided the main structure around which to elaborate. Terminator Technology, for example, was constructed upon the foundation of the Frankenfood frame. It shared several key elements with Frankenfood such as the use of science fiction themes, the 'othering' of the frame's subject, and the use of hyperbolic language. Building on an existing core frame provides the benefit of

working from a pre-established structure, and elaborating on claims that have already had public exposure and are widely understood.

ii) Introducing frame elements which appeal to key ideational features of the opportunity, including elements borrowed from complementary frames

Elements that were deemed resonant in the particular context of the volatile discursive opportunity were introduced to the frame, and were also borrowed from complementary frames. For example, elements of Agropoly were integrated into the Terminator Technology frame to emphasise the level of control sterile seed technology would give corporations over farmers' choices and world food systems. Agroecology's nuanced portrayal of the seed meant that it was also a good source of content from which to borrow in order to speak intimately to the debate around sterile seed technology.

iii) Directly addressing and neutralising opposition claims

Claims which effectively rebutted or neutralised the opposition's frames were a common feature of successful opportunity frames. For example, through Africa – Don't Get Left Behind, the ISAAA effectively painted a picture of agricultural biotechnology as a form of empowerment actively chosen by modern Africans, counteracting the anti-biotech movement's claims of agri-colonialism. The Back Door to Africa deployed exemplars demonstrating how African nations which hadn't accepted GM food aid had recovered well after experiencing food crisis, directly rebutting the industry claim that failure to accept GM food aid would result in starvation and long-term impoverishment.

iv) Appealing to a range of principles which resonate with a wide audience

Dominant opportunity frames tended to draw upon the appeals to principle underwriting several complementary frames, linking them to the specific context. For example, The Back Door to Africa appeals to the human rights and freedoms of Food Sovereignty, namely the right to decide what to eat, to choose local and culturally appropriate food, and the right to refuse GM food aid. It appeals to the precautionary principle which underwrites Frankenfood, emphasising the risk of contamination associated with GM food aid. This is then linked with appeals to the inherent value of nature found in Agroecology, which elaborates on the loss of biodiversity as an impact of contamination. Finally, the frame appeals to the principles of truth and transparency consistent with Agropoly, arguing that recipients of food aid have a right to know what they are eating and where it comes from. By appealing to a broad range of principles,

opportunity framing ensures resonance with the widest possible audience, therefore consolidating the frame sponsor's position.

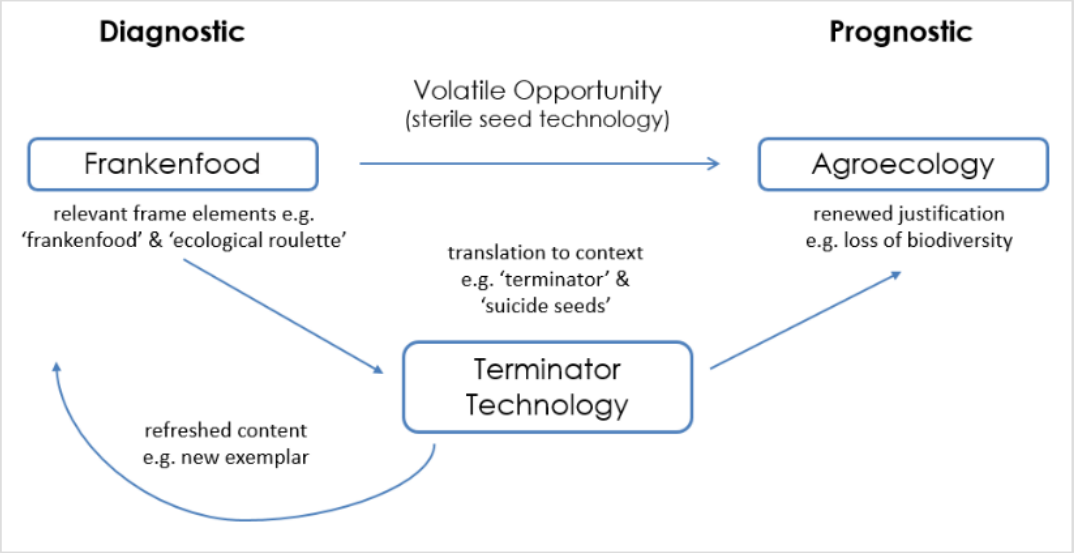
v) Responding swiftly to developments in the socio-political context

Critically, this characteristic enabled the frame sponsor to promote their preferred interpretation whilst the issue was still ambiguous and whilst policymakers were yet to form a solid opinion. It also increased the efficacy of framing activity by ensuring that the frame content was up to date and appeared timely and relevant. For example, the swift incorporation of the StarLink GM food aid contamination exemplar into The Back Door to Africa frame lent empirical credibility[21] to the anti-biotech movement's claims. The StarLink contamination exemplar then helped to reinforce the claims the anti-biotech movement had been making for years about contamination fears, the domination of corporate agribusiness, and consumers being used as 'human guinea-pigs'. The popular condemnation of the original StarLink scandal in America just a few years before also served to enhance the frame's visibility by widening its audience to include those who had taken an interest the first time around. By quickly adopting and emphasising this exemplar the frame gained significant ground.

The analysis highlighted how opportunity framing enabled the focal organisations to make the most of volatile discursive opportunities, with benefits enduring beyond the boundaries of each particular discursive event. Specifically, it helped to consolidate the links between an organisation's preferred diagnosis and prognosis of an issue by providing fresh content with which to flesh out or reinvigorate its core frames. Though each frame has diagnostic, prognostic, and motivational elements, visualising how opportunity framing can consolidate the links between predominantly diagnostic and predominantly prognostic frames serves to clarify its strategic function in public issue framing contests.

[21] Empirical credibility here refers to "the apparent fit between the framings and events in the world" (Benford & Snow 2000, p.620).

Figure 16. Strategic Function of Opportunity Framing



Opportunity framing, then, serves to confirm the diagnosis of an organisational actor's core frames. Translating the claims (i.e. elements) of the core frames into terms relevant to the current socio-political context, opportunity framing provides timely, renewed justification for the sponsor's preferred prognosis. The new elements that opportunity frames are furnished with then enable a frame sponsor to refresh the content of its core frames, thus leading to their reinvigoration and the longer term benefits that this might entail. The opportunity frame itself is a highly temporary construction composed of elements garnered from core frames and elaborated for the purpose of responding to a particular opportunity. In the longer term the frame is likely to become redundant when the window of opportunity closes because of developments in the socio-political context and that particular configuration of new and borrowed frame elements is longer relevant or resonant. However, whether the opportunity frame is actively deconstructed, or naturally decomposes, some of its still-resonant elements such as new exemplars may be incorporated back into the sponsor's core frames.

The concept of opportunity framing contributes to a better understanding of how organisations use discursive opportunities to influence the outcomes of public issue framing contests. In doing so, it helps to address a shortcoming in the literature relating to the time dimension of framing contests. Benford criticised the framing literature for its failure to "examine continuities and changes in framing strategies, their forms, and the content of frames" over time (1997, p.417). Whilst some research has begun to look more closely at framing over time in a multi-organisational setting

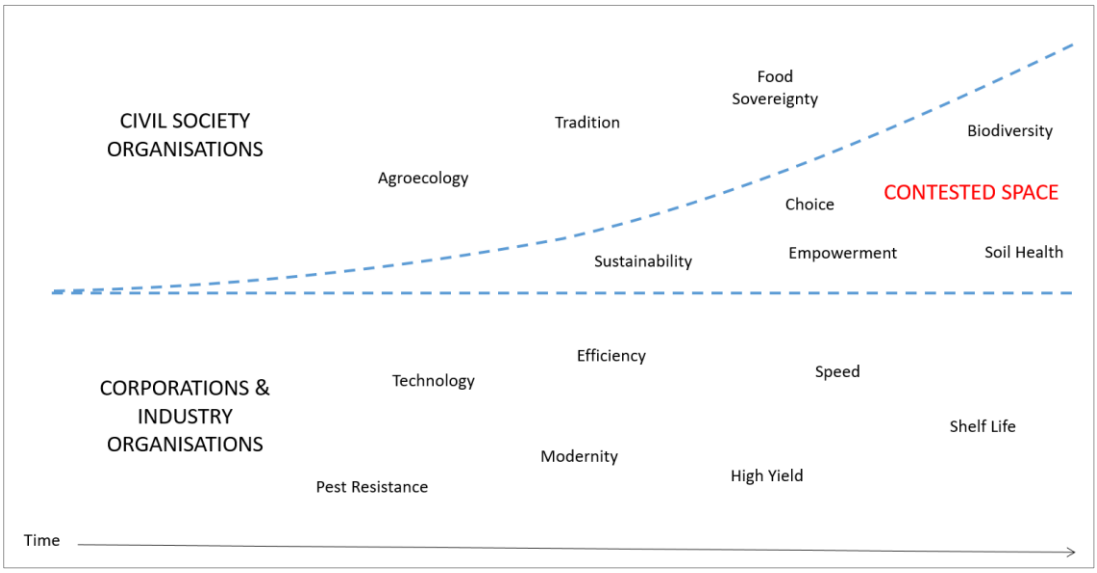
(Ansari et al 2013; Litrico & David 2017), attention to frame content has been remained inadequate. The longitudinal approach of the current study, in conjunction with the signature matrix methodology (Creed et al 2002a; Gamson & Lasch 1981), has resulted in a deeper level of insight into how the content of frames changes over time.

Specifically, identifying the process of opportunity framing has helped to conceptualise how organisations are able to respond rapidly to volatile windows of discursive opportunity through the construction of opportunity frames. It has elaborated on the content of those frames, using examples from the empirical data to demonstrate how frame elements can be borrowed and adapted to serve the imminent purposes of the sponsor organisation. It has also shown how that content can be adapted in response to changes in the socio-political context, and how it can be discarded or incorporated back into the sponsor's core frames (depending on its relevance and resonance) when the opportunity frame becomes redundant. In as much as the concept of opportunity framing helps to shed light on the changes in frame content over time, it contributes to a more dynamic understanding of public issue framing contests. This understanding is further enhanced through insights gained into the process of frame co-optation over time.

Frame Co-optation

Through the gradual and strategic appropriation of language traditionally associated with the anti-biotech movement, Monsanto put itself in a stronger position both from which to interact routinely with existing stable discursive opportunities, and to respond swiftly and convincingly to new volatile opportunities presented by the world food crisis. The discursive middle ground which once existed between the biotech industry and the anti-biotech movement had been saturated with industry communications (led by Monsanto) by the time the world food crisis occurred. These insights help to conceptualise the appropriation of language over time as a strategic framing process through which a frame sponsor can establish its dominance in a long-term public issue framing contest.

Figure 17. Appropriation of Language over Time



Language which formerly characterised alternatives to industrial agriculture such as that of 'sustainability', 'empowerment', 'biodiversity', and 'soil health' became normalised and thus neutralised, commonly appearing in industry communications. In their industry-appropriated form, these concepts serve to reinforce rather than disrupt the status quo, and can therefore no longer be considered 'alternative'.

The successful appropriation of language by Monsanto and the biotech industry left the anti-biotech movement with much less discursive space in which to manoeuvre. Of course, the movement could still deploy frames and their elements falling within the contested space of the 'middle ground', but given their overlap with industry frames the effects of these would be largely diluted. This was demonstrated in the way the framing contest played out around the world food crisis, with Monsanto's frames dominating the debate in spite of some high-level misgivings about agricultural biotechnology, such as those reported by IAASTD. Whilst the wider discursive space available to the anti-biotech movement in the past had supported an array of frames with broad appeal, the relatively confined space resulting from the appropriation of language constrained the anti-biotech movement by limiting the potential for effective framing activity, therefore narrowing the scope for political impact.

The appropriation of language does not in itself equate to frame co-optation, as some literature indicates (Adams & Shriver 2010). After all, a frame offers more meaning-making (and interpreting) capacity than the sum of its linguistic parts might seem to suggest. However, the analysis demonstrates that the appropriation of language is an

important contributing factor in frame co-optation. Specifically, it facilitates the appropriation of other frame elements, including important cultural resources (e.g. the seed in the agri-biotech debate). It would seem reasonable to argue that if a sufficient proportion of a frame's elements are appropriated in this way, then the frame has been co-opted. In short, the frame's core content (i.e. important frame elements) has been publicly reconceptualised in such a way that it no longer serves the purposes of its original sponsor, and is now more aligned with the interests of the co-opter.

Whilst the biotech industry's appropriation of 'alternative' language limited the efficacy of the anti-biotech movement's framing activity in response to the world food crisis, one thematic area in which this doesn't appear to have happened to any significant degree is food sovereignty. Friends of the Earth adopts a definition of food sovereignty which includes "the right of all peoples…to define their own food and agriculture systems" arguing that food sovereignty "offers an alternative to the current trade and food regime, and directions for food, farming, pastoral and fisheries systems determined by local producers" (FoE 2011b, p.4). Perhaps one reason for the lack of appropriation in this area is that the language of food sovereignty is too radical to facilitate appropriation, challenging dominant systems of food production and distribution as it does. Use of the language of justice and rights is also prevalent in this thematic domain. Though the biotech industry does loosely refer to the 'right to food' in such a way that reinforces the inevitability of increasing production to feed a growing population, the overlap stops there. Indeed, research suggests that values-based claims may be harder for corporate actors to substantiate and therefore less susceptible to appropriation (Adams & Shriver 2010). If such values-based claims are indeed resistant to appropriation, then they may represent an important strategic resource for CSOs in the issue framing contest over agri-biotech and global food security, as well as in other important public debates.

Marchetti claims that "contemporary forms of political agency are enmeshed in a network of social relations in which the realms of state, market and society overlap" (2013, p.3). The findings presented in this chapter suggest that this overlap contributes to the complexity of the discursive playing fields in which public issue framing contests play out. As such, the spaces of political possibility for effective framing activity through which organisations can promote their preferred interpretation of an issue or event are sometimes hidden, often unpredictable, and can allow privileged access to some organisational actors over others. The insights gained in this chapter help to

conceptualise how and why this is so in the context of the public issue framing contest over agricultural biotechnology, and will be developed further in the following chapter.

Summary

This chapter has presented a targeted analysis of the ongoing debate over agricultural biotechnology as a response to the issue of global food security as it unfolded over the course of three key events; the advent of sterile seed technology in late 1990s, the controversy surrounding GM food aid in the early to mid-2000s, and the world food crisis of 2008. The analysis revealed how the issue-frames identified in the previous chapter were put to work during these events, unpacking the framing strategies of organisations competing to dominate public discourse. Specifically, it addressed the central research question, which asks:

How do organisations use discursive opportunities to contest public issues?

In doing so, it led to several important theoretical insights regarding the power and political agency of organisational actors engaged in the public issue framing contest over agri-biotech, and how they engage with stable and volatile discursive opportunities. The chapter elaborated on two framing strategies in particular. Firstly, opportunity framing, a process through which organisational actors respond to volatile discursive opportunities. Secondly, frame co-optation through the appropriation of language, and the resulting struggle for discursive space. As well as providing a deeper, political agency-based understanding of how discursive opportunities can facilitate and constrain the framing attempts of competing organisations, the findings bring fresh insight into how framing strategies unfold over time. In this way, they contribute to a more dynamic view of public issue framing contests which is able to account for changes in frame content at the elemental level as a frame sponsor responds to stable and volatile discursive opportunities deriving from the socio-political context. The following chapter presents a more detailed discussion of the findings presented in this and the previous chapter, and considers how they speak to the literature on discursive opportunity and public issue framing contests.

Discussion

Introduction

The findings outlined in the previous two empirical chapters have shed light on the public issue framing contest over the use of agricultural biotechnology as a response to the issue of food security. They have brought insights into strategic organisational framing activities, and specifically into the concept of discursive opportunity, reaching beyond the context of food security to extend current understandings of public issue framing contests more generally. The research sought to explore the dynamics of public issue framing contests through targeted consideration of the following questions:

> *What agri-biotech issue frames get activated in public food security discourse?*
> *How do organisational interests shape the framing process?*
> *How do organisations use discursive opportunities to contest public issues?*

In doing so, it provided a comprehensive breakdown of some of the frames at play in the agri-biotech debate, reflecting critically on how they are constructed to achieve particular ends. The research then progressed to explore how these frames were adapted and deployed in response to key events occurring in the socio-political context as organisations engaged in the discursive struggle to dominate public food security discourse.

The findings can be summarised as three main theoretical outcomes relating to i) the relative political agency of different organisations in relation to discursive opportunities, ii) how organisations engage with stable and volatile discursive opportunities, and iii) the struggle for discursive space. These theoretical outcomes will each be discussed in turn, reflecting on how they stretch or challenge the ways in which public issue framing contests are currently theorised, and in doing so contribute to the framing literature. The research also brought some interesting methodological insights, and illuminated some opportunities and challenges specific to the public issue framing contest over global food security. The chapter will conclude by unpacking these before presenting a brief summary of the discussion.

Power, Political Agency & Discursive Opportunity

Variation in the way different organisations engage with discursive opportunities identified through the analysis highlights significant power differentials at play between framing opponents. These power differentials exist on different levels, and play out in different ways in the context of a public issue framing contest. Rejecting a traditional resource-based understanding of power, the research conceives of power as "embedded in a network of discourse relations which captures the advantaged and disadvantaged alike in its web" (Phillips & Hard 1997, p.171). Taking this critical discursive perspective facilitated an understanding of political agency based on a range of modes and manifestations of power. On the basis of this understanding, the findings revealed how different modes of power can facilitate or constrain an organisation's political agency and therefore affect its capacity to influence public discourse. Much of the framing literature de-politicises the framing process by failing to acknowledge the issues of power and political agency that invariably arise when organisational actors with distinct interests and agendas compete to shape public discourse (Adams & Shriver 2010; Carragee & Roefs 2004; Shriver et al 2013). In contrast, the current research takes a political agency view of framing which offers a richer understanding of the power dynamics at play in public issue framing contests.

The findings suggest that corporate actors have preferential access to stable discursive opportunities compared with their CSO framing opponents. As such, they may be less inclined to risk their legitimacy by engaging directly with unpredictable volatile discursive opportunities. CSOs, on the other hand, appear more likely to engage with volatile discursive opportunities, in part due to their limited access to stable discursive opportunities. One of the reasons for this is a relative lack of traditional power resources, which may compel them to engage with riskier but potentially rewarding volatile opportunities. In doing so, the findings suggest that they are in fact mobilising discursive power resources, resulting in different but no less significant manifestations of power and political agency. Whilst the framing literature suggests that there are a broad variety of reasons why an organisation may or may not respond to a particular discursive opportunity (McCammon et al 2007), it does not elaborate on the nature of these reasons. Taking a political agency view of framing, the current research provides targeted insights which help account for differences in the way organisations engage with stable and volatile discursive opportunities.

Furthermore, the findings indicate that one way in which organisations realise their political agency is by not only responding to but also actively shaping or even constructing discursive opportunities to influence public discourse. Conrad argues that

> "…rhetors not only respond to situations, they proactively and strategically mold them. The advent of globalization has made it even more important for organizations to anticipate the challenges they will face, to plan for them, and to actively try to create favourable political and economic structures and cultural assumptions"
>
> (Conrad 2011, p.130)

Indeed, the findings show an increasingly acute awareness of this need both on the part of corporate and CSO actors, but suggest that this manifests itself in different ways. Specifically, multinational agribusiness Monsanto was able to actively co-construct public food security discourse, thereby creating stable discursive opportunities for its future framing activity. Again, this capability appeared to be largely due to the corporation's strong traditional power base. In contrast, the CSOs FoE and ACB had more influence in shaping volatile discursive opportunities. In particular, their swift action in formulating a persuasive interpretation of events as they unfolded enabled the CSOs to set the boundaries of the issue early on, and to garner the public attention to the issue required in order to keep the window of opportunity open for longer.

'Traditional' Power & Political Agency

The findings suggest that differentials in traditional resource-based power had a significant impact on the relative ability of corporations and CSOs to create and access salient discursive opportunities. Specifically, preferential access to political and institutional channels of influence, in part due to the nature of the social and material resources available to them, meant that corporate and industry organisations were not only able to access stable discursive opportunities, but also to play an active role in their construction. Financial resource was undoubtedly a significant factor, facilitating corporate framing efforts through such modes as corporate-funded research, high-budget PR campaigns, and carefully manicured corporate reports. The ability to play an active role in the construction of stable discursive opportunities through such means appears to enable corporate actors to both feed into dominant discourse, and to reflect its core messages in a reinforcing cycle. Such discursive practices demonstrate the

realisation of political agency in that they promote values and beliefs that maintain and even reinforce the status quo (O'Brien 2015). In this sense, traditional power resources significantly contribute to the successful long-term framing strategy of corporate actors. Phillips and Hardy claim that "discursive power may reinforce resource-based power" (1997, p.182). Indeed, the findings indicate that resource-based power may also reinforce discursive power, in as much as it facilitates access to and creation of stable discursive opportunities to shape public discourse.

In part due to their influence over stable discursive opportunities, corporations appear to face less pressure than CSOs to engage with volatile discursive opportunities. Corporations are also more likely to have the kind of political support that enables them to stay silent in the face of risky volatile opportunities in the knowledge that their interests will be represented. The findings build on existing literature on elite framing to suggest that 'discursive obstruction' campaigns (Shriver et al 2013), whereby elite actors use their power to turn public opinion against movements that challenge their interests, can minimise the need for corporations to engage with risky volatile discursive opportunities. This was evident in the controversy surrounding GM food aid, where President Bush spoke out in fierce opposition to anti-biotech campaigners, often distorting the opposition's message in order to protect American corporate interests. Whilst this example highlights the importance of political and institutional connections as a framing resource (Pfeffer & Salanick 2003), in both cases where political elites spoke out on behalf of corporate interests the anti-biotech movement still succeeded in dominating public discourse. This suggests that discursive obstruction by political elites alone is not enough to secure industry interests.

The findings indicate that when corporations do perceive a need to engage with volatile discursive opportunities, it may be possible to avert some of the associated risk by speaking through the mouthpiece of industry-funded organisations. The ISAAA's framing activity in response to the world food crisis reflected Monsanto's interests, echoing the corporation's communications, but doing so much more vociferously. As a non-customer facing organisations with less riding on its legitimacy, the ISAAA was able to engage more directly with the issue without such risk to its organisational identity and licence to operate as Monsanto would have been subject to. The findings therefore again emphasise the importance of corporations' networks of influence (Pfeffer & Salanick 2003), indicating that the freedom afforded by the support of actors

with aligned interests may enable corporations to focus their framing strategies on long-term, low-risk approaches to influencing public discourse.

In elaborating on the role of discursive opportunity in privileging corporate access to channels through which to shape public discourse, the current research contributes to the literature on framing and organisational discourse. Specifically, it demonstrates how the ability to create and access stable discursive opportunities allows corporate actors "to 'fix' meaning in ways that will serve their particular interests" (Mumby 2004, p.237). This ability is underwritten by the strong traditional resource-base of multinational corporations. Such resources represent a significant mode of power in themselves, but also serve to reinforce discursive forms of power, opening up spaces of political possibility in which corporate actors can shape public discourse.

Cultural & Discursive Power & Political Agency

The research also sheds light on the ways in which public issue framing contests can give rise to opportunities for organisations traditionally seen as less powerful to realise their political agency. Taking a critical discursive approach to questions of power involves considering a wider range of power resources than the traditional resource-based view advanced by Pfeffer and Salanick (2003). Some scholars have expressed the need for research into how activists construct opportunities over periods of time (Reinecke & Ansari 2016). The findings suggest that CSOs may play an active role in constructing volatile discursive opportunities by bringing to light issues or events that were not previously widely known or deemed significant. This was the case with sterile seed technology, which wasn't owned by Monsanto when the controversy began, and was never actually commercialised. Whilst the technology could have gone 'under the radar' for a long time, by successfully reading the significance of Monsanto's planned acquisition of the company owning the technology and drawing public attention to the issue, RAFI activated the volatile discursive opportunity which ultimately led to the demise of the technology. The framing response then rapidly developed by RAFI, FoE and other anti-biotech CSOs served to open up the opportunity. Furthermore, the findings indicate that volatile discursive opportunities may be sustained by effective framing action. That is, if an organisation is able to continually deploy frame elements such as new and relevant exemplars, feeding in relevant information to maintain public

interest and frame resonance, then the window of opportunity may remain open for longer than it otherwise would have.

These findings support the claim that it is unhelpful to characterise social movements as powerless in relation to those they seek to challenge (Creed et al 2002a). Although CSOs are often subject to considerable resource constraints compared with the multinational corporations they often engage in framing contests with, they also benefit from different competencies. Phillips and Hardy argue that "discursive power may compensate for a lack of traditional power sources" (1997, p.182). Indeed, the current research suggests that the significant research skills of many CSOs strengthens their capacity to keep a finger on the pulse and detect potential opportunities that can be discursively activated. Their response to such opportunities is often further facilitated by knowledge of important local/cultural resources which can be translated into resonant frame elements. Furthermore, the fact that their *raison d'etre* is to challenge the status quo likely makes CSOs more willing to engage with volatile discursive opportunities which, though potentially risky, are also potentially very fruitful. The literature suggests that CSOs may also benefit from more public trust because of their non-profit status, giving them an edge in the context of morally intense volatile discursive events where the virtuous claims of corporate actors may be subject to doubt or derision. [22] As such, CSOs arguably have a more legitimate claim on moral or values-based language which may help open up spaces of political possibility for changes reflecting their interests (Adams & Shriver 2010).

The current research builds on this literature, demonstrating how the capacities to activate, open up, maintain, and effectively seize volatile discursive opportunities constitute important modes of discursive power through which CSOs can realise their political agency. Whilst corporations may be more adept at creating and responding to stable discursive opportunities due to their stronger base of traditional power resources, volatile discursive opportunities have important strategic potential for organisations less rich in such resources.

[22] In light of several recent controversies in the third sector, public trust in CSOs is reportedly diminishing (Plummer 2018), and it is therefore likely that the gap between public trust in corporations and CSOs is narrowing. This will of course have an impact on the dynamics of public issue framing contests into the future.

Stable & Volatile Discursive Opportunities

The findings suggest significant differences in the way organisations respond to stable and volatile discursive opportunities. Previous research has drawn a distinction between volatile discursive opportunities which "derive from relatively short-lived or relatively new ideational elements", and stable discursive opportunities which "stem from discourses that are long lived and deeply embedded in the surrounding culture" (McCammon et al 2007, p.732). The literature suggests that "it is useful to treat stability as a variable element, running from highly inert components that are more or less permanent features of the terrain to windows of opportunity that may only be open briefly" (Ferree et al 2002, p.62). It has also been argued that volatile opportunities are more open to the influence of actors that seek to shape public discourse, and that external 'jolts' can provide important contextual openings for framing activity (Reinecke & Ansari 2016, p.324). However, the literature offers little insight into *how* different organisations use stable and volatile discursive opportunities to enhance their framing efforts. As such, it de-politicises the framing process, failing to account for the differences in power and political agency that determine which voices dominate public issue framing contests, and how those issues are responded to.

The current research addresses this gap in the literature, providing new insights into how organisations engage with stable and volatile discursive opportunities to influence the outcomes of public issue framing contests. The term 'opportunity framing' is coined to conceptualise a framing process identified through the research, through which organisations are able to respond swiftly and effectively to volatile discursive opportunities. In contrast, a longer-term and less risk-laden approach is taken in response to stable discursive opportunities, involving the appropriation of language and frame co-optation. In shedding light on these processes, the research contributes to a more dynamic view of public issue framing contests. Whereas previous research has tended to take a static view of framing (Benford 1997; Cornellisen & Werner 2014), the current research recognises framing as an active, processual phenomenon engaged in by actors with distinct interests and agendas. Taking a critical discursive perspective on issue framing, the differences in organisational framing activity are conceived of as a result of the power relationships which enable them to create, shape and respond to spaces of political possibility.

Engaging with Volatile Discursive Opportunities: Opportunity Framing

Of the little research that has considered how organisations respond to volatile discursive opportunities, McCammon et al (2007) have presented the most useful preliminary insights. In their study of the US women's jury movement, the authors describe 'opposition claims' and 'wartime' as less stable discursive opportunities in that they "served up discursive themes that were often salient for only a short while" claiming that "these were more dynamic discursive opportunities for movement participants" (2007, p.745). Their analysis concludes that successful engagement with these volatile discursive opportunities was characterised by i) effective neutralisation of opposition claims, and ii) linking frames to an emerging discourse on supporting the war effort. The findings of this research both support and extend these insights.

The three key events around which the analysis took shape each in their own way offered up salient but relatively short-lived discursive themes, providing new and dynamic but also unpredictable opportunities for framing activity. The analysis identified opportunity framing as a process through which organisations were able to respond effectively to these new volatile opportunities. The research differentiates between core frames and opportunity frames in order to help clearly distinguish between and better conceptualise different kinds of framing activity. The term 'core frames' is devised to refer to the repertoire of frames that an organisation commonly deploys to promote its preferred interpretation of an issue. Those frames may have different focuses and emphases (e.g. some are predominantly diagnostic and others predominantly prognostic), but together they give a full picture of the organisation's position on an issue. Opportunity frames, on the other hand, are developed in response to a specific volatile discursive opportunity. The active process of opportunity framing involves context-specific elaboration of a core frame in response to a volatile discursive opportunity, often utilising elements borrowed from complementary frames. Five characteristics of successful opportunity framing were identified, namely; i) building on the foundation of a compelling core frame, ii) introducing frame elements which appeal to key ideational features of the opportunity, including elements borrowed from complementary frames, iii) directly addressing and neutralising opposition claims, iv) appealing to a range of principles which resonate with a wide audience, iv) responding swiftly to developments in the socio-political context.

Whereas McCammon and colleagues (2007) conducted their frame analysis at a broad thematic level, this research delved deeper to deconstruct frames into their component elements. This enabled the analysis to shed light on how the frames interacted with discursive opportunities at their elemental level, bringing a new depth of insight. This approach served to demonstrate how opportunity framing enables an organisation to make the most of a volatile discursive opportunity, with positive ramifications continuing even after the window of opportunity has closed. Specifically, opportunity framing serves to reaffirm the issue diagnosis presented in an organisation's core frames by translating its claims into terms that speak to the current context. As well as providing a frame of interpretation through which to understand the events as they unfold, this also provides renewed justification for the sponsor's preferred prognosis, and refreshes and updates the content of core frames with new elements such as exemplars from the unfolding event. In this sense, opportunity framing facilitates the strategic process of frame amplification which involves the "idealization, embellishment, clarification, or invigoration of existing values or beliefs" (Benford & Snow 2000, p.624), feeding back into and reinvigorating an organisation's core frames.

Whilst previous research has suggested that volatile elements of discursive opportunity may present a chance for actors wishing to shape public discourse, it has given little indication of how this might occur (Ferree et al 2002). The current research addresses this gap, conceiving of opportunity framing as an important strategic process through which organisations are able both to respond to new issues and events as they unfold, promoting the interpretation that best serves their interests, and to reinforce their core frames with refreshed content. Opportunity framing therefore has both immediate and longer term implications. Distinguishing between core frames and opportunity frames in this way offers new insights into issue framing as an active process. In particular, it helps to shed light on how the strategic dynamics of a framing contest play out over time by demonstrating how the short term process of opportunity framing can in fact feed into an organisation's long term framing strategy. Whilst the literature provides little insight into the potentially negative impacts of engagement with volatile discursive opportunities, the findings suggest that though the potential rewards of engaging with such opportunities may be high, they also carry a significant degree of risk. For example, pressure to provide a swift response to events as they unfold may lead to hurried and misjudged framing activity. Palazzo and Scherer emphasise the role of media actors who can act as "information gatekeepers", manipulating or emotionalising discourse, and influencing public perception of

organisational activities (2006, p.83). The fact that discourse is open to distortion by the media adds to the unpredictable nature of volatile discursive opportunities, and may also create space for the discursive obstruction campaigns of elite actors who are able to use their power to distort CSO messages and undermine their legitimacy (Shriver at al 2013). This risk is not limited to CSOs, and is likely one of the key factors explaining why corporations are less inclined to engage with volatile discursive opportunities. Further research could investigate the risks associated with volatile discursive opportunities, and how these might impact upon both corporate and civil society organisations.

Engaging with Stable Discursive Opportunities: Frame Co-Optation

The findings suggest that maintaining legitimacy is an important factor compelling corporations to engage with stable discursive opportunities. In their exploration of corporate legitimacy in the agri-biotech industry, Lamphere and East emphasise that "legitimation strategies are not simply one-off measures taken to bolster the credibility and continuity of actions but are meaningful commitments that shape subsequent action, both discursive and material" (2017, p.85). They explain that shifts in global sustainability discourse over the years have provided Monsanto with opportunities to make corresponding shifts in its discourse, leading to greater social acceptance of its discursive frames. The authors argue that these shifts demonstrate corporate legitimation in action, promoting a favourable environment for the continuity of their activities, and consequently their ability to maximise profit. The findings of this research provide further evidence of these shifts in Monsanto's discourse, translating these insights to the framing literature by theorising this legitimation strategy as a key factor driving corporate engagement with stable discursive opportunities.

The findings suggest that through the appropriation of language embodying alternatives to dominant institutionalised practices, which is traditionally associated with CSOs, corporations are able to track the discourse of their framing opponents. The appropriation of language is often accompanied by, and indeed facilitates, the appropriation of specific frame elements. Furthermore, if sufficient frame content is appropriated, this can lead to frame co-optation whereby a frame no longer serves the purposes of its original sponsor, and instead becomes aligned with the interests of its co-opter. These findings support existing literature which asserts that "frame sponsors

can make clever jujitsu moves and adopt the very same language of their opponents to co-opt, redefine, or reclaim it" (Creed et al 2002a, p.42). Indeed, in recent years the framing literature has emphasised increasing corporate co-optation of social movement frames and mapped changes in corporate discourse in line with pro-social/environmental trends (Adams & Shriver 2010; Ken 2014; Lamphere & East 2017). The findings of this research extend understandings of this kind of framing activity by illuminating how this strategy can be conceived of as the active creation of stable discursive opportunities through the co-construction of public discourse.

Ferree et al claim that framing contestants "can themselves sometimes change the contours [of the discursive landscape] through actions that create new discursive opportunities" (Ferree et al 2002, p.62). Indeed, by appropriating language traditionally associated with CSOs and drip-feeding it through institutional channels into public discourse, corporations are able to participate in the construction of the 'official frames' used by institutional elites (Shriver et al 2013). The promotion and reproduction of these official frames is facilitated by the power and perceived legitimacy of such elites (Livesey 2002). In a sense then, if "environmental factors provide the discursive building blocks of organizations", then stable discursive opportunities allow organisations to "alter these building blocks and introduce these innovations back into the environment" (Creed et al 2002a, p.52). This process not only makes stable discursive opportunities more accessible to corporate actors, but also dilutes the CSO frames from which content has been appropriated. As such, the appropriation of language, and the resulting corporate co-optation of CSO frames, can be seen as both resulting from and perpetuating structural power differentials. These power differentials serve to both facilitate the political agency of corporate actors whilst constraining that of CSOs.

The research has provided some initial insights into motivational factors for engaging with stable discursive opportunities (e.g. legitimation) and volatile discursive opportunities (e.g. public exposure). It has also highlighted some reasons why organisations may not engage with stable discursive opportunities (e.g. lack of resource) and volatile discursive opportunities (e.g. risk). However, there is undoubtedly a wider range of opportunities and constraints affecting the decision (if indeed it is one) of whether to engage. Future research could provide a fuller mapping of these opportunities and constraints, and in doing so improve the decision-making capacity of organisations engaged in public issue framing contests. Furthermore, in

order to better understand the processes and mechanisms through which corporate actors create stable discursive opportunities, future research could map the channels through which corporate discourse influences multilateral discourse, thus shaping the normative environment in which corporations operate.

The Struggle for Discursive Space

The findings highlight that a key factor influencing the outcomes of public issue framing contests is the struggle for discursive space. They indicate that whilst CSOs often seek to create discursive space, corporations engage in the opposite tactic of minimising space for discursive struggle. Furthermore, the analysis suggests that whilst stable discursive opportunities facilitate the appropriation of opposition frames and their elements, and the subsequent minimisation of discursive space, volatile opportunities hold potential for the creation of discursive space. Adams and Shriver claim that "even when discursive opportunities are conducive to the resonance of social movement framing, they may simultaneously facilitate frame co-optation. Specifically, oppositional or competing forces can appropriate the discursive structures to exploit social movement messages for their own ends" (2010, p.34). Consistent with their assertions, the findings highlight co-optation of CSO frames as an important corporate strategy within the framing contest over agricultural biotechnology. However, taking a political agency perspective on framing, and differentiating between stable and volatile discursive opportunities, enables the current research to present a more nuanced understanding of how discursive opportunities facilitate and constrain the framing efforts of different organisations. Specifically, it suggests that whilst stable discursive opportunities might facilitate frame co-optation, volatile discursive opportunities offer a space of resistance where social movements can re-differentiate their co-opted claims.

Consequences of Frame Co-Optation

The strategic importance of volatile discursive opportunities is paramount to CSOs given increasing corporate appropriation of alternative language and co-optation of social movement frames. Frame co-optation eliminates discursive space in that it blurs the boundaries between corporate and CSO claims making it difficult to differentiate

between them. As Adams and Shriver put it, "this type of co-optation serves to muddy the waters of public discourse regarding salient movement messages" (2010, p.53). For example, to those less familiar with the nuances of food security discourse, there may be no discernible clash of ideologies between Monsanto's claim to engage in food security enhancing initiatives and Friend of the Earth's outwardly similar claims to promote global food security. In reality, the outworking of the two is likely to look very different. The co-optation of frames and their elements therefore gradually narrows the pool of discursive resources with which a CSO can effectively set its claims apart from those of corporations.

Livesey describes 'sustainable development' as "a space of dissension and sociopolitical struggle where competing discourses of the economic and environmental paradigms are joined" (2002, p.316). This space is a middle ground, which akin to the muddied waters described by Adams and Shriver (2010), has been increasingly characterised by confusion and debate. Livesey describes how engaging with the discourse of sustainable development allows corporations to commit to low level change whilst simultaneously resisting higher order change, supporting claims that enactments of pro-social/environmental discourse can lead to meaningful commitments (Lamphere & East 2017), but that these are also inherently limited by the profit motive (Adams & Shriver 2010). The kind of discursive struggle taking place in these contested spaces is more complex and significant than the simple description of frame co-optation might imply. Indeed, Ferree argues that "actors who make political claims that 'stretch' the meaning of a concept", as is the case in the struggle over discourses of sustainable development, food security, and any number of other contested terms, "'stretch' their whole web of meaning to encompass people or practices that were connected in different patterns. They thereby change the shape and structure of the web as a whole" (2009, p.89). By changing the shape and structure of this so-called web, organisations are influencing the ways in which global social, political and environmental challenges are responded to, and not necessarily in alignment with the public interest.

Resisting Frame Co-Optation

The findings suggest that industry frames are much less likely to use language associated with justice, rights, fairness and equality in their framing of an issue. This is consistent with the findings of Adams and Shriver (2010), who observed that AAF

movement organisations often addressed issues of fairness in food systems, but that corporations were much less likely to do so. They hypothesise that these kinds of values-based claims "may be much more difficult for corporations to substantiate", reflecting that the "difference in framing may reflect broader public perceptions of trust and power in corporate firms versus social movement organizations" (2010, p.52). The current research builds on the findings of Adams and Shriver by conceiving of the language of justice and rights as a strategic resource for CSOs in resisting corporate co-optation of alternative frames. Ferree notes that "'rights' is not a master frame that has a 'real' meaning that could ever be fully known or 'correctly' used, but is a more or less meaningful and discursively powerful way of speaking depending on the panoply of meanings attached to it" (2009, p.89). The language of rights is of course malleable, as Ferree suggests, and this is reflected in the fact that industry organisations do make some references to rights. However, these references appear to occur at a surface level and to be carefully linked to institutionalised definitions.

The findings of the current research suggest that values-based claims domains are less elastic than others. This arguably limits the extent to which they can be stretched by corporate frame sponsors to serve profit maximising ends. To the extent that they are less susceptible to corporate appropriation, values-based claims present opportunities for CSOs to differentiate their frames through careful elaboration. The findings emphasise the significance of volatile discursive opportunities for the strategic deployment of this discursive resource. The moral intensity which often characterises volatile discursive opportunities arguably presents a ripe opportunity for values-based claims to resonate. In these moments of heightened public awareness, the claims of CSOs are likely to be all the more convincing in relation to those of corporate actors given the differential in public perceptions of trust. These insights could be fruitfully extended by research exploring the kinds of values-based claims that are least susceptible to corporate co-optation. Specifically, the social movements literature would benefit from research shedding light on how values-based claims can best be elaborated to resist corporate frame co-optation.

Volatile Discursive Opportunities as Newly Delimited Spaces

The findings suggest that as well as facilitating the reproduction of corporate legitimacy through strategic framing activity, increasing corporate co-optation of

alternative language also limits the availability and saliency of discursive space for successful movement framing. The framing literature often describes volatile discursive opportunities as 'windows' of opportunity (Ferree et al 2002, p.62; Koopmans & Olzak 2004, p.201). This metaphor has a spatial element to it, implying the existence of an aperture or opening. Indeed, the findings indicate that one of the reasons that CSOs are likely to engage with volatile discursive opportunities is that they allow frame sponsors to bring a new angle on the contested issue which may swing the debate in their favour. They do this by creating new space in which frame sponsors can articulate their claims and present their preferred interpretation of the issue at hand. The key events central to the analysis demonstrate how changes in the socio-political context can create new space for effective framing activity. Specifically, volatile discursive opportunities represent newly delimited spaces with distinct discursive topographies, salient features of which present prime opportunities to influence public discourse. Therefore, whilst stable discursive opportunities allow corporations to approximate the claims of CSOs, volatile discursive opportunities allow CSOs to diverge from the claims of their corporate framing opponents and redefine issues and events in their own terms. The search for more salient space is therefore one of the driving forces behind CSO engagement with volatile discursive opportunities. This strategy is arguably increasingly important given the nuanced framing strategies of multinational corporations which are becoming adept at deploying dialectic rhetoric and tapping into the broader social consciousness with their claims (Adams & Shriver 2010; Castelló & Lozano 2011).

Methodological Insights

The research findings indicate that the frame analysis and subsequent discursive opportunity analysis were significantly enhanced by the combination of complementary frame element and rhetorical analysis techniques. This involved bringing together the use of signature matrices to unpack frames into their component elements and then drawing upon rhetorical theory to unpick the layers of meaning imbued in those elements. Though some research in Sociology and other related fields has made use of Gamson and Lasch's (1981) signature matrix (Ban 2016; Beckett 1996; Gamson & Modigliani 1989; Kwan 2009), few studies in the domain of Management and Organisation have taken this nuanced approach to frame analysis (Creed 2002a; Creed et al 2002b; Dahan & Gitten 2010). Creed et al (2002a) highlight the merits of the

signature matrix as a tool in helping to direct attention to how different idea elements are deployed, to discern connections between them, and to identify the frames which hold them together. This is an important precursor to digging deeper into the implicit meanings and assumptions that underpin frames, and to unveiling the "highly charged political differences that are typically masked by bland and seemingly innocuous policy statements and discourses that no one could object to" (Creed et al 2002a, p.45).

In the framing literature there is a tendency to focus on the relatively surface-level clashes between competing frames. This is arguably due to research predominantly taking a thematic approach to frame analysis and failing to focus in on the important role of individual frame elements in contributing to frame resonance and the overall efficacy of framing activity. Creed et al note that the same phrase can "take on different meanings depending on who is using the term and in what contexts" (2002a, p.42). The research demonstrates how directing attention to individual frame elements and how they function both individually and in conjunction with each other can help to shed light on the underlying assumptions of frames which seem compatible on a surface-level but are in fact based on conflicting ideologies. For example, exploring implicit frame conflicts, the analysis revealed that though 'choice' was a dominant theme in both pro and anti-biotech frames, it was composed of different frame elements. Choice in the anti-biotech Food Sovereignty frame was composed of both positive and negative freedoms. The positive freedoms were portrayed through frame elements which utilised the language of justice and rights, such as the appeal to the principles of the UDHR. The negative freedoms were portrayed through frame elements which utilised the language of law, such as the exemplar of the criminalisation of the practice of seed saving. In contrast, choice in the pro-biotech Farmers Know Best frame was constructed primarily of positive freedoms, expressed through elements such as the catch-phrase of 'when the farmer succeeds, we succeed', which embodies the frame's core message of empowerment through choice.

This approach to analysis was a crucial factor in bringing to light the strategic value of important frame elements in public issue framing contests. For example, analysis of the discursive struggle taking place around the contested frame element of the seed highlighted its symbolic value to the anti-biotech social movement, and demonstrated how the cultural meaning with which the symbol is imbued was harnessed and manipulated by industry organisations recognising its strategic potential. Specifically, industry frames contested the anti-biotech movement's portrayal of the seed as

intrinsically valuable, relocating that value in its role as a vessel for (bio)technology. These insights at the frame element level were particularly important for understanding how frames connect with discursive opportunities by deploying elements which "tap into the vocabulary, underlying principles, and narratives of salient discourses in the broader cultural environment" (McCammon et al 2007, p.732). The importance of the discursive struggle over contested frame elements was highlighted in the analysis of the controversy over sterile seed technology. The seed formed the symbolic centre around which the Terminator Technology frame was built, and was central to the efficacy of the anti-biotech movement's opportunity framing activities. For example, juxtaposing 'natural' and 'unadulterated' seed with the 'suicidal' or 'terminator seeds' helped the movement to tap into public fears in the wake of several food scares in Western Europe (Schurman 2004). The fact that the anti-biotech movement managed to hold onto the symbolic cultural value of the seed, preventing its co-optation by industry organisations, was a major factor in the outcome of the contest. The methodological approach therefore served to highlight the strategic importance of symbolic frame elements in public issue framing contests and how they can be effectively harnessed to target salient discursive opportunities.

The use of rhetorical theory brought a new level of insight to the frame analysis. For example, unpacking the pro-biotech Inevitability frame demonstrated how different frame elements worked together to construct a categorical syllogism which led to the conclusion that agricultural biotechnology is the solution to global food insecurity. Few studies have combined the use of signature matrices with insights from rhetorical theory to help unpeel the layers of contested meaning and bring to light the oppositional stories that characterise framing contests at the frame element level in this way. The insights gained from this methodological approach suggest that further research using signature matrices and rhetorical theory could help to shed light on how discursive struggles play out at the elemental level of framing contests, and how the defence or co-optation of powerful symbols can affect the outcomes of such contests. Snow et al note that framing researchers rarely "consider visual forms of framing, and yet movement activists often rely on such representations" (2014, p.35). Indeed, this was reflected in the analysis of the seed as a contested frame element, diverse visual representations of which were central to both pro and anti-biotech frames. Given that frame appropriation doesn't just take place at the thematic level but also around symbolic elements, further research into contestation over imagery may also be fruitful.

Framing Food Security

The findings serve to highlight the complexity of the public issue framing contest over agricultural biotechnology, and over food security more broadly. They connect with previous research across a range of disciplines which has explored the highly contested nature of food security discourse (Adams & Shriver 2010; Fontoura et al 2016; Lang & Barling 2012; Mooney & Hunt 2009), and how the debate around agricultural biotechnology feeds into that broader conversation (Lamphere & East 2017; Schurman 2004; Schurman & Munro 2006). The research supports the findings of scholars who claim that the outwardly unifying food security consensus frame conceals significant internal dissensus (Mooney & Hunt 2009), and that corporate agribusinesses are increasingly using elements of social movement frames in their advertising materials and PR campaigns, "tapping into the broader social consciousness of citizens concerned with justice, sustainability, local food systems, and producer-accountability" (Adams & Shriver 2010, p.54). Indeed, the research serves to demonstrate how corporate agribusinesses, taking a leaf out of the activism handbook, construct their frames around such irrefutably 'good' themes as sustainability, choice, and empowerment that they seem to ask, "Who could possibly object to what we're saying?" (Creed et al 2002a, p.45).

The contested nature of food security gives rise to a "repertoire of interpretations… each with its own policy implications" (Mooney & Hunt 2009, p.492). Different actors are concerned with a whole host of issues including food quality, quantity, distribution, access, safety, and nutritional value, advocating responses to the issue of food security as diverse as slow, organic, and local food, agroecology, sustainable intensification, vertical farming, and of course genetically modified food. Previous research has highlighted how such diversity in 'food philosophies' has meant that "policy responses to food security are fractured and contested" (Lang & Barling 2012, p.321). The research findings suggest that in a policy environment where greater coherence is critically important, the public issue framing contest over food security is increasingly obscured by a mess of overlapping claims which sometimes appear complementary but mask a wealth of contradiction. This is exacerbated by corporate co-optation of frames traditionally associated with alternative approaches to food systems, not only on a broad thematic level (Adams & Shriver 2010), but right down to the elemental level. Corporate regulatory capture is also inhibiting a more coherent approach to food and agricultural policy. Indeed, research suggests that "corporations play an increasingly

important role in the architecture of food power", in part due to the fact that they are often "actively involved in policy making" (Fontoura et al 2016, p.434). The research supports the findings of Fontoura and colleagues that in many cases, "corporate and governmental actors seem to talk more or less with one voice" (2016, p.434), highlighting the systemic power imbalances that inhibit legitimate and democratic challenges to dominant food paradigms.

The research findings support the claim that "alternative framings of food are now beginning to coalesce around a set of discourses that are based, for example, on issues of food sovereignty and agro-ecology" (Maye & Kirwan 2013, p.3). The increasing public prevalence of such frames suggests a hunger for change in the way food systems are governed. This hunger is also reflected in the many thriving alternative food movements springing up in communities around the world. In spite of the fact that the potential for change is significantly limited by the problematic regulatory environment, these alternative food movements and communities offer hope of meaningful resistance whilst more substantial change is fought for and anticipated. Ken (2014) emphasises how corporations seek to become part of our communities by framing issues as problems which they can solve, even if they've been part of its cause or perpetuation. However, even multinational corporations, in their 'desperation' for legitimacy, "implicitly acknowledge that they are not and cannot be legitimate members of communities unless the public lets them" (2014, p.130). In this sense, the most important realisation of those advocating alternatives to unsustainable and unequitable food systems is that "the power to include corporations in our communities is ours to give away, and it should be guarded carefully" (2014, p.145).

Summary

This chapter has discussed the significance of the key findings and theoretical outcomes of the research. Reflecting on the issues of power and political agency, the discussion emphasised how differences in the way organisations engage with stable and volatile discursive opportunities are partly due to the different capabilities and constraints affecting organisations from different sectors. Whilst the importance of traditional power resources was emphasised, particularly in that they empower corporations to create and access stable discursive opportunities, the discussion also highlighted how other capabilities, and particularly the capacity to successfully

mobilise important discursive resources, can put CSOs in a strong position from which to capitalise on volatile discursive opportunities (Phillips & Hardy 1997). In offering such insights, the research re-politicises the framing process by providing a more nuanced understanding of how discursive opportunities facilitate and constrain the framing attempts of organisations with distinct interests and agendas.

Opportunity framing was introduced as a process through which organisations can effectively respond to volatile discursive opportunities, and five key features of successful opportunity framing were identified. Opportunity framing is not only strategically important in the short term, but can also underwrite an organisation's long term framing strategy by reinvigorating its core frames. Appropriation of alternative language, and frame co-optation, were highlighted as increasingly prevalent corporate framing strategy (Adams & Shriver 2010), and newly theorised as a process through which corporations are able to create and respond to stable discursive opportunities. These findings contribute to the framing literature by offering a more dynamic view of issue framing contests which captures the strategic process of framing over time in a multi-organisational setting (Benford & Snow 2000).

The issue of frame co-optation was identified as symptomatic of the ongoing struggle for discursive space occurring between corporate and civil society actors. Within this struggle, corporations and industry organisations seek to limit space for discursive struggle, whilst CSOs employ the opposite strategy of space creation, seeking to differentiate their communications from those of their framing opponents in order to challenge dominant institutionalised practices. Whilst the discussion highlighted the role of stable discursive opportunities in facilitating frame co-optation and the minimisation of discursive space, it also emphasised the potential of volatile discursive opportunities for the creation of discursive space.

With regard to the methodological approach of the research, the discussion noted the value of combining the use of signature matrices, CDA and rhetorical theory in a nuanced approach to frame analysis. Finally, reflecting on the issue-context of global food security, the discussion emphasised how the highly contested nature of the issue feeds directly into corporate regulatory capture and an incoherent approach to food and agricultural policy. Nonetheless, hunger for change is reflected in the thriving AAF movement and will not be easily satiated.

Conclusion

Introduction

This concluding chapter draws together the previous chapters in order to synthesise the key learnings from the research and discuss their implications. It provides a succinct summary of the thesis, demonstrating how the research questions have been answered and the research aims met. It then unpacks the theoretical and empirical contributions of the research, progressing to discuss the practical implications arising for different organisational actors. Limitations of the research are acknowledged and briefly discussed, before identifying potential avenues for further research, and drawing to a close with some concluding remarks.

Thesis Summary

The research examined the role of discursive opportunity in contesting public issues, focusing on the issue of global food security. Setting the scene for the research, the second chapter reviewed the literature on discourse in organisation studies. It situated the research as taking a macro level, critical approach to the study of discourse, which is primarily concerned with understanding how the relative power and political agency of different organisational actors influences their ability to create, promote and reinforce discourses which complement their own agendas (Marshak & Grant 2008). Introducing the literature on issue framing which provided the theoretical foundation for the methodological approach, the chapter highlighted the significant potential of the concept of 'framing contests' for understanding how organisations influence debates around important public issues (Ryan 1991; Dahan & Gittens 2010). The highly contested issue of global food security provided a suitable context in which to situate the research given its enduring public relevance, important socio-political implications, and the high stakes of the organisations involved.

Chapter three elaborated in greater detail on the theoretical positioning of the research. It highlighted some limitations of framing research relating to questionable construct clarity, inadequate attention to power dynamics, and to the multi-organisational settings in which framing contests take place, and a lack of research studying framing contests as they unfold over significant periods of time (Benford

1997; Benford & Snow 2000; Carragee & Roefs 2004). The issue of context was raised, identifying significant potential to contribute to the literature by offering a more nuanced understanding of how contextual factors influence the outcomes of public issue framing contests. Having introduced the concept of discursive opportunity structure as a key conceptual component of the research (Koopmans & Olzak 1999), the chapter emphasised the need for conceptual elaboration regarding the relative stability or volatility of discursive opportunities, and how issues of power and political agency affect the way different organisations engage with them (McCammon et al 2007; Shriver et al 2013). Such elaboration is key to providing a more nuanced understanding of why certain issue frames gain traction whilst others never do.

Focusing on the methodology of the research, chapter four made a case for taking an interpretive approach to the study of organisational discourse which recognises the role of language in the way knowledge of the world is socially constructed, and which emphasises the ideological nature of discourse. Acknowledging that organisational discourse allows for multiple overlapping and competing versions of social reality, the chapter presented a firm philosophical foundation from which to explore how organisations use discursive opportunities to construct public issues in particular ways (Wetherell 2001). Having introduced the central research question and supporting questions which guided the research process, the chapter then discussed the rationale for the approach to data gathering and the different phases of analysis. It made a case for taking a critical discourse analytical (Fairclough 1995) approach to frame analysis, using signature matrices (Creed et al 2002a; Gamson & Lasch 1981) in combination with insights from rhetorical theory (Hoffman & Ford 2010) to explore the public issue framing contest over agricultural biotechnology.

Chapter five relayed the first set of empirical findings of the research, answering the two supporting research questions, namely *i) What agri-biotech issue frames get activated in public food security discourse?* and *ii) How do organisational interests shape the framing process?* It introduced the issue frames that were identified, discussing their diagnostic, prognostic, and motivational characteristics (Snow & Benford 1988), as well as their organisational sponsors, and intended audiences and arenas (Creed et al 2002a). The analysis explored the links between different frames and dug deeper to expose implicit meanings and assumptions, demonstrating how their different interests and agendas shaped the way organisational actors sought to construct the issue of agricultural biotechnology as a response to global food security.

Chapter six presented the second set of empirical findings in answer to the central research question: *How do organisations use discursive opportunities to contest public issues?* The analysis revealed significant variation in how different types of discursive opportunity (i.e. stable and volatile) were responded to by different types of organisation. The appropriation of 'alternative' language and subsequent co-optation of CSO frames was highlighted as a means through which corporations are able to create and consolidate stable discursive opportunities, and to minimise space for discursive struggle. 'Opportunity framing' was identified as a process through which organisations can effectively respond to volatile discursive opportunities arising in the socio-political context, and the value of volatile discursive opportunities for their space-creation potential was emphasised.

The seventh chapter entered back into conversation with the literature in order to situate the findings and theorise at a broader level about the role of discursive opportunity in public issue framing contests. Building on the nascent literature on discursive opportunity, the chapter elaborated on the main contributions of the research by i) theorising about how issues of power and agency affect the way different organisations engage with discursive opportunities, ii) explaining differences in the way organisations respond to stable and volatile discursive opportunities, and iii) discussing the role of discursive opportunities in the struggle for discursive space. The chapter also reflected on key methodological insights gained through the research process, and discussed some of the opportunities and challenges specific to the public issue framing contest over global food security.

Contributions

At the outset of the research, identifying key issues and shortcomings in the organisational discourse and frame theory literatures gave rise to four central research aims. This section provides a succinct overview of how the research has fulfilled these aims, and in doing so has made theoretical, empirical, and practical contributions to the literature.

Theoretical Contributions

The first aim was to contribute towards the theoretical refinement of the concept of discursive opportunity structure by elaborating on preliminary insights in the literature regarding stability and volatility (McCammon et al 2007). Whilst the framing literature makes a general distinction between stable and volatile discursive opportunities, it has little to say about the nature of these differences, and what they mean for organisations seeking to influence public discourse. The current research has fulfilled this aim by elaborating on the nature of stable and volatile discursive opportunities and providing insight into how they are used by organisations engaging in public issue framing contests. Specifically, it has identified opportunity framing as a process through which organisations are able to respond swiftly and effectively to volatile discursive opportunities. Previous research stopped short at claiming that the value of volatile discursive opportunities lies in their openness to the influence of actors that seek to shape public discourse (Ferree et al 2002). The current research went further, revealing how volatile discursive opportunities provide a ripe context for opportunity framing, a strategic framing process with both immediate and long-term benefits. Furthermore, it has newly theorised corporate appropriation of the language of the 'alternative' and co-optation of CSO frames as a means through which stable discursive opportunities are both created and responded to. In shedding light on these processes, the research contributes to a more dynamic view of public issue framing contests. Whereas previous research has tended to take a static view of framing (Benford 1997; Cornelissen & Werener 2014), the current research recognises framing as an active, processual phenomenon engaged in by actors with distinct interests and agendas. Taking a critical discursive perspective on issue framing, the research conceives of these differences in organisational framing activity as a result of the power relationships which enable them to create, shape and respond to spaces of political possibility. This leads us into consideration of the second research aim.

The second aim of the research was to critically examine how issues of power affect the political agency of organisations seeking to shape public discourse around contested issues by engaging with discursive opportunities. The findings build upon preliminary research in this area which deals with issues such as discursive obstruction by elite actors (Shriver et al 2013), and frame co-optation by powerful organisations (Adams & Shriver 2010). Specifically, they shed light on how the relative power of different organisations affects their interaction with discursive opportunities, and in doing so

has a direct impact on their capacity to affect political change. Taking a critical discursive perspective facilitated an understanding of political agency based on a range of modes and manifestations of power (Phillips & Hardy 1997). On the basis of this understanding, the findings brought new insights into variation in the relative capacity of different organisations to use discursive opportunities to influence public discourse. Whilst the framing literature suggests that there are a broad variety of reasons why an organisation may or may not respond to a particular discursive opportunity, to date these reasons have not been detailed (McCammon et al 2007). The current research contributes to the framing literature by bringing insights from the findings together with extant literature on power and organisational discourse to theorise about why different organisations may or may not respond to different types of discursive opportunity. Specifically, it highlights the capacity of powerful corporate actors to play an active role in the construction of stable discursive opportunities through frame co-optation and the appropriation of language, conceiving of this as an expression of political agency through which dominant discourse and practice is reinforced, and space for discursive struggle is minimised. Traditional power resources are seen as pivotal in this process, operating in a mutually reinforcing cycle with discursive forms of power (Phillips & Hardy 1997). The capacity to activate, open up, maintain, and effectively seize volatile discursive opportunities, often demonstrated by CSOs, is also recognised as an important expression of political agency. Reinforced by a variety of non-traditional power resources, this capacity is key to the creation of discursive space for the realisation of political impact.

In short, much of the framing literature de-politicises the framing process. This is a result of several contributing factors. Firstly, the research often fails to capture the dynamic and interactive nature of framing contests in a multi-organisational setting (Benford & Snow 2000; Dahan & Gittens 2010). Secondly, many scholars conduct 'snapshot' analyses which present frames as static and neglect the temporal aspect of framing in action (Benford 1997; Cornelissen & Werner 2014). Thirdly, framing research often overlooks issues of power and political agency, at times rendering frames benign and their sponsors agendaless (Adams & Shriver 2010; Carragee & Roefs 2004; Shriver et al 2013). In contrast, the current research takes a political agency view of framing. This perspective offers a more nuanced understanding of how discursive opportunities facilitate and constrain the framing attempts of organisational actors with overlapping, competing, and often conflicting interests and agendas. Specifically, it offers a dynamic view of public issue framing contests, capturing frame

emergence and development over time, and shedding light on how issues of power shape the outcomes of discursive struggles over important public issues.

Empirical Contributions

The third research aim was to gain insight into the interests of competing organisations in the public issue framing contest over global food security by conducting a deeper level of frame analysis than is typical of the framing literature. Previous research acknowledges that outwardly similar frames sometimes mask inwardly conflicting ideologies (Adams & Shriver 2010; Mooney & Hunt 2009). However, this research adopted a novel methodology in order to "pierce the veil" of organisational discourse and expose some of the implicit conflicts taking place between organisations engaging in the public issue framing contest over global food security (Creed et al 2002a, p.45). This facilitated critical examination of the overlapping, and often competing and conflicting interests of organisations actively shaping public food security discourse. Whilst research in the framing literature predominantly takes place at a broad thematic level, this research dug deeper to explore frames at their elemental level, progressing to consider how those elements work in conjunction to achieve particular ends (Creed et al 2002a). The methodology elicited new insights by combining the use of signature matrices with CDA and rhetorical analysis to deconstruct and critically analyse competing issue frames (Gamson & Lasch 1981).

The research reinforces the claim that frame analysis using signature matrices is a useful analytical tool for organisational research, particularly given its capacity to help examine the ideological building blocks and subjugated voices behind seemingly innocuous organisational discourse (Creed et al 2002a). Bringing this nuanced approach to frame analysis together with the study of discursive opportunity offered new empirical insights into how frames are deployed in response to discursive opportunities, and how specific frame elements can serve to open up or interact with those opportunities. In taking this approach, the research responds directly to calls in the framing literature for studies which are sensitive to the complex multi-organisational setting in which framing contests occur, investigate framing processes (and subsequent changes in frame content) over time, and address issues of power (Benford 1997; Benford & Snow 2000; Cornelissen & Werner 2014). Moreover, whilst studies often privilege the perspective of one side of a framing contest over the other,

taking a dialogical approach which gives equal consideration to framing opponents enabled the current research to contribute towards a more meaningful discussion of potentially divisive ideological differences (Heracleous 2006).

Practical Implications

The fourth and final research aim was to explore public issue framing contests in a rich and politically relevant context in order to maximise scope for social impact. Creed et al assert that "frame analysis is not just a technique for making sense of complex discourses, but an invitation to reenter, or admit being part of, a politicized project that has far-reaching implications for people's lives" (2002a, p.53). Accepting this invitation, the research sought to gain further insight into the power dynamics at play in the public debate over agricultural biotechnology in the hope of contributing to redressing the power imbalances that inhibit effective policy making and legitimate challenges to dominant food paradigms (Lang & Barling 2012). The findings support existing literature which highlights the power of corporations in the food systems domain, demonstrating how corporate actors often dominate food security discourse whilst other voices struggle to be heard (Adams & Shriver 2010; Fontoura et al 2016). Whilst the complexity of this multifaceted and multi-organisational international debate defies simple answers, some meaningful insights have emerged which have implications for a range of organisational actors. Ferree et al argue that the playing field in which public issue framing contests take place strongly influences their outcomes, and that in order to succeed, frame sponsors must "be able to read this playing field and make their choices with an awareness of the opportunities and constraints that it provides" (2002, p.82). The research makes a practical contribution to organisational research by elaborating on factors that may affect how such choices can be effectively made by corporations whose social licence to operate depends upon effective engagement with public discourse, and by CSOs seeking to effect social change. It also reflects on the role of political actors and multilateral organisations in shaping and mediating the nature of the playing field itself.

Corporations

The findings of the research shows that corporations and industry organisations benefit from investment in long term communication strategies which reflect changes in the public consciousness. These communication strategies are more likely to succeed when they are attentive to the language and symbols which particularly resonate with the socio-cultural context at any given time (Benford & Snow 2000; Ferree 2003). Such investment contributes to the creation of stable discursive opportunities for effective future framing activity. Corporate actors which are attentive to changes in the socio-cultural context and pro-actively seek to contribute to important public conversations as they emerge will find themselves better placed to respond to demands for change when they arise. Such a strategy contributes directly to a more resilient public image whilst simultaneously reducing the need to engage with riskier volatile discursive opportunities.

However, such engagement must venture beyond lip-service to incorporate real change. Indeed, communicating commitments that reflect the changing public consciousness may be an important corporate legitimation strategy, but such commitments must shape material as well as discursive action if they are to be effective in the long term (Lamphere & East 2017). Corporate enactments of contested public discourse such as sustainable development can signal both resistance and change (Livesey 2002). In many cases corporations make low-level changes whilst resisting higher order change, doing little more than is necessary to maintain a public licence to operate. Resistance is understandable when the very essence of a business model is publicly challenged. However, engaged and connected global citizens have more knowledge at their fingertips than ever before, and corporations are therefore increasingly dependent upon public permission to participate in different social, political, economic, and cultural communities (Ken 2014). Consequently, there are undoubtedly advantages to be gleaned from demonstrating willingness to commit to higher order change, taking up the challenge of find new ways to adapt so that profitability doesn't come at such a great cost to society. Corporate rhetoric can then be engaged as a celebration of socially responsible policies and practices rather than symbolism without substance (Conrad 2011).

The research responds directly to a call in the framing literature for practical research which supports social movements and their goals (Snow et al 2014). The findings suggest that volatile discursive opportunities are of significant strategic importance to CSOs for the purposes of space creation and discursive differentiation from their corporate framing opponents. Nonetheless, CSOs must learn to read the playing field of public discourse effectively in order to successfully identify which opportunities to engage with (Ferree et al 2002). With regard to how to respond, the research has identified opportunity framing as a process through which organisations, particularly CSOs, can respond effectively to volatile opportunities. Through careful, context-specific elaboration of their core frames, CSOs can open up and maintain volatile discursive opportunities which permit them the space in which to reaffirm their issue diagnosis, provide renewed justification for their advocated prognosis, and reinvigorate their core frames. To do so successfully, the research indicates that they should:

i) build on the foundations of compelling core frames

ii) introduce frame elements which appeal to key ideational features of the opportunity, including elements borrowed from complementary frames

iii) directly address and neutralise opposition claims

iv) appeal to a range of principles which resonate with a wide audience

v) respond swiftly to developments in the socio-political context

Whilst opportunity framing has the potential to open up spaces of political possibility, the pressures of corporate frame co-optation and the struggle to make their voices heard can lead CSOs to engage in the kind of radical framing activity that risks undermining their credibility. It is therefore important for CSOs to be discerning in their engagement, weighing up the potential opportunities and risks. The findings indicate that the use of values-based language such as that of justice and rights represents an important strategic resource for CSOs in that it is less susceptible to corporate appropriation. One of the reasons for this is that public perception of the moral legitimacy of COSs permits them to use such language with more credibility than their corporate framing opponents (Adams & Shriver 2010). Consequently, CSOs must recognise the strategic value of their moral legitimacy and strive to maintain credibility with the public if this important point of differentiation is to be maintained.

The broad remit of most multilateral organisations contributes to the complexity of their role as both contributors to discourse around public issues and mediators of the playing field in which framing contests unfold. Representing a wide range of social, political and economic interests at international, regional and national levels, multilateral organisations are in themselves sites of contestation. The issue of food security is a prime example of how such complex forums can be fraught with internal dissensus when it comes to decision making around important public issues (Fontoura et al 2016). In 2001, the UN Human Development Report acknowledged that both public fear and commercial interests can dominate global debates around agricultural biotechnology in ways which do not promote the best interests of local communities. "Under these conditions objective, well-informed debate is difficult. The opinions of those most vociferous, rather than those who stand to gain or lose the most, can drive decision-making" (UN 2001, p.68). However, acknowledging this issue does not make it go away; many years later the debate is arguably still as fractious as ever.

A recent publication from the *Food Ethics Council* concerning the food and farming research agenda reflected on the likelihood of achieving the second Sustainable Development Goal of ending hunger, achieving food security and improved nutrition, and promoting sustainable agriculture by 2030 (UN 2017).

> "Whether the world reaches this goal will be determined by many actors, but whose voices should dominate discourse, and who should set research priorities? The stakes are high: ecological integrity, public health and decent livelihoods for marginalised people on one hand, versus greater profits for and control by the private sector on the other. Research funded through public sources must support the former, and governments must set limits on the ways in which the latter further enhances political power through campaign contributions and lobbying at the national and international scales"
>
> (Anderson 2018, p.28)

Indeed, whilst multinational organisations provide a forum for global debate and present opportunities to pursue an internationally joined-up approach, action is also required at the national government level. This is true not just of the issue of global food security, but in the way a multitude of cross-cutting public issues are addressed. National governments have a responsibility to ensure that the interests of the most

vulnerable are protected. Whilst corporate actors need to be part of the conversation, their voices must not be allowed to drown out less powerful interests. National governments must therefore act to level the playing field, limiting the ways in which private interests are able to exert undue influence through lobbying action and privately funded research.

Limitations & Avenues for Further Research

The research presented throughout this thesis has been carefully designed and conducted to provide meaningful insight into the role of discursive opportunity in public issue framing contests. The research quality criteria of a worthy topic, rich rigor, sincerity, credibility, resonance, significant contribution, ethics, and meaningful coherence have been central to the research process (Tracy 2010). Nonetheless, the research is subject to some limitations. Firstly, frame analysis is undoubtedly "enhanced by an in-depth knowledge of the actors and social arenas involved" (Creed et al 2002a, p.49). Whilst the research process has involved deep immersion in the subject of agricultural biotechnology and global food security, the limits of the researcher's technical understanding of the subject and knowledge of the actors and social arenas involved will have invariably constrained the research to some degree.

Critical discourse analysis is all about capturing the dynamic interplay between text, discourse, and context (Phillips & Hardy 2002). The research sought to explore discourse at these three levels, focusing on i) the text itself, and the language of which it is constituted, ii) the level of production where a text is constructed, distributed, and interpreted, and iii) the level at which the message interacts with structures of meaning in the public domain (Fairclough 1995). Whilst a significant level of insight was gained at the first and third levels, it proved more difficult to uncover the processes of production and consumption. This meant that there was less focus on the mid-level processes where speaking/writing, editing, distribution and interpretation mediate between texts and social discourse. At times this also made it more challenging to clearly identify a frame's sponsor and to differentiate between the framing activity of sponsors with similar agendas, particularly within the anti-biotech movement. Further insight could be gained at this level through different forms of qualitative research, such as interviews and ethnographies.

Given that the nature of the issue of global food security, the characteristics of the agri-biotech industry, and the media coverage of the issue are all complex and specific, it is important to acknowledge that some of the insights gained through this research are particular to the context. However, whilst a rich research context is often considered a hindrance to theorising (Welch et al 2011), the "thick description" it enables allows invaluable insight into how the context imbues social reality, action and interaction with meaning (Stake 2005, p.449). Furthermore, there are a number of important factors which hold true across many public issue framing contests, and which therefore support the relevance of the findings for other contexts. For example, the fact that public issue framing contests of this nature unfold in the international arena means that many of the organisations involved are common to multiple contests, including national governments and multilateral organisations such as the UN and the World Bank. Although the corporate and civil society organisations involved vary by issue, the power differentials at play between multinational corporations and CSOs arguably hold many similarities across contexts. Consequently, it would be unhelpful to assume that the findings bear little relevance to other contexts. As such, further research could explore the extent to which the core findings hold true to other public issue framing contests. For example, are the characteristics of successful opportunity framing identified in this research also discernible in other public issue framing contests? Such research may help to identify the idiosyncrasies of the context and help to clarify distinctions between the context-bound details of the research and its context-free findings and propositions (Welch et al 2011).

In the same way that focusing on a different public issue may have yielded different findings, choosing different focal organisations may also have yielded different insights. The organisations were selected on the basis that they had specific characteristics which would facilitate exploration of the central themes of the research (Ritchie et al 2003). In particular, they had been vocal in the public debate around agricultural biotechnology, and thus provided ample data which could be analysed in order to identify issue frames and gain insight into framing strategies over time. One consequence of this approach is that some important voices will have been overlooked. Whilst the research sought to remain sensitive to questions of power, considering the factors which contribute to more powerful voices being heard whilst less powerful voices are overlooked, those interests which were never actually voiced in the public arena were naturally precluded from the research. This limitation serves to highlight the importance of joining up research across different levels of analysis. Whilst the

current research focused on the macro level debate with its important implications for how the public issue of global food security is responded to, complementary micro level research which gives voice to those whose everyday lives are impacted by the decisions made at the macro level would help to complete the picture.

Given its macro level approach, the scope of the research is wide. Organisational discourse and rhetoric is even more complicated when it becomes global, and when audiences span different cultures and environments. Whilst regional, national and local nuances are difficult to capture at this level, the macro level study of organisational discourse is important if the effects of globalisation are to be critiqued, and the injustices resulting from its unequal distribution of benefits are to be challenged (Hoffman & Ford 2010). Such critique is necessary if important public issues such as global food security, climate change and modern slavery are to be effectively addressed. However, this wide scope comes at the cost of depth in some areas. For example, further insight into the role of multilateral organisations as mediators of the playing field for public issue framing contests would have enriched the research. Furthermore, discursive opportunities for effective framing will vary according to the regional, national, and local socio-political and institutional context. Future research could therefore elaborate on the particularities of discursive opportunity structure at these levels, where a different set of factors shape the playing field for public issue framing contests.

In our increasingly interconnected digital society, the importance of social media as a discursive platform for both multinational corporations and CSOs is plain to see. For example, corporate blogs are increasingly a medium through which corporations seek to construct their own legitimacy and counteract criticism from social movements and the media (Barros 2014). Social media is also an important medium for the dissemination of CSO communications, playing a significant role in social movement recruitment and mobilisation processes (Molaei 2015). Investigating how social media affects the "shifting terrain" of discursive opportunities for organisations to influence the outcomes of public issue framing contests would therefore be another fruitful line of enquiry for future research (McCammon et al 2007, p.732).

Concluding Remarks

Undertaking the research for this thesis has presented an incredible opportunity to learn more about a subject that will never cease to be relevant, or to provoke interest. The debate around global food security is marked by the passion of people working at the highest levels of international influence as well as those producing and consuming food in local communities around the world. Throughout the research process it has at times proved difficult to maintain optimism about the potential for the organisational rhetoric at work in this debate to have a positive impact on society (Boyd & Waymer 2011). However, remembering that organisations are made up of these passionate people, with their often clashing but deeply-held convictions, helps to shore up the sense that organisational rhetoric should not be dismissed as beyond remediation (Palenchar 2011). Rather, everything possible must to be done to ensure that some voices do not dominate the conversation to the exclusion of others. Given the important developments taking place in the global food security domain, including Bayer's recent acquisition of Monsanto, and the uncertainty around food policy after Brexit, how this conversation plays out is as relevant now as it has ever been. The hope is that this thesis can add a small piece of understanding to this large and complex puzzle.

Appendices

Appendix A: Notes for Conducting a Critical Reading

Hoffman and Ford provide the following notes on how to conduct a critical reading (2010, p.243).

Step 1: Conduct an Oppositional Reading
Use the following chart to consider questions of choice and voice, and how rhetorical strategies provide support for your answers.

Questions of Choice & Voice:	**Strategies that "Advocate or Defend" the Organization's View:**
Choice: Is information presented in a way that allows audiences to make informed decisions? (Alvesson & Deetz 2003)	
Choice: Are there any apparent contradictions that are ignored or de-emphasized, thus limiting the information available to audiences? (Giddens 1979)	
Choice: Are there assumptions about power or shared values that are taken for granted? (McKerrow 1989)	
Choice: What is left unsaid in the rhetoric? What information is omitted, and what topics are not addressed? (Cheney & Dianisopoulos 1989)	
Voice: Who is "speaking"? Which groups' interests are revealed? Which are concealed? Can you clearly identify the rhetor? (Cheney & McMillan 1990)	
Voice: Are the ideas or values of a few power parties presented as the ideas or values of the whole? (Giddens 1979)	
Voice: Are there any apparent contradictions that are dismissed or reframed such that the voices of those identifying them are muted? (Giddens 1979)	
Voice: Does the discourse invite participation from all interested parties? (German 1995)	

Step 2: Draw Conclusions about Power
Formulate conclusions about how power is constructed or maintained in the rhetoric. Answer some or all of the following questions as you consider what you found in step 1. The first two help to describe in part the ideology or world-view of the organization.

1. What things seem to be most important to the organization? What things seem to be least important?
2. Which groups of people seem to "matter" to the organization? Who seems less important?
3. What possible implications for society grow out of this ideology? For example, does the ideology expand or limit opportunities for diverse groups of people? Does it reflect a tendency to focus narrowly on organizational interests, or to take a broader view?

Appendix B: Core Frame Signature Matrices & Illustrative Quotes

Frankenfood

Frame	**Frankenfood**
Summary sentence	Agri-biotech as a dangerous and irresponsible response to the issue of food security
Primary framing task	Diagnostic
Position	Global food security is threatened by genetically modified food, which is unsafe, unpredictable, and threatens to contaminate conventional crops. Consumers have unwittingly become guinea-pigs for the experimentations of multinational agribusinesses. GM food poses a serious risk to human and animal health, the environment, and the global food supply. Labelling of food products containing GM ingredients should be mandatory in order to allow consumers to make informed choices
Metaphors	Frankenfood Human guinea-pigs Ecological roulette
Exemplars	Accounts of inter-species GM developments e.g. fish DNA in tomatoes Examples of negative unforeseen consequences e.g. thalidomide & asbestos Evidence of contamination, particularly where there is allegedly a high level of risk e.g. biopharmaceutical crops Examples of potential negative human health impacts of GM food e.g. allergenicity, toxicity and resulting nutritional deficits
Catch-phrases	Agri-biotech as a 'hit-and-miss' process Super weeds (weeds that have developed resistance to agro-chemicals)
Depictions	Agri-biotech scientists as dangerous meddlers i.e. akin to Dr Frankenstein GM crops as highly experimental GM as abnormal/other/unnatural Consumers as unwitting participants in corporate GM experimentation
Visual images	Images (often computer enhanced) and cartoons depicting 'mutant' food Images suggesting 'unnatural' genetic combinations e.g. strawberry-fish
Root of the issue	Genetically modified crops are fundamentally different from conventional crops and are therefore unpredictable. Agribusinesses cut corners and follow unnatural lines of research in pursuit of profit and at the expense of the health and wellbeing of society and the environment.
Consequences	Meddling with the natural order of things comes with a high risk of human and environmental health concerns, as well as contamination of the conventional crops on which we rely. The full extent of the consequences of agricultural biotechnology are unknown but potentially devastating
Appeals to principle	Safety Precautionary principle

Framing Component	**Frankenfood: Illustrative Quotes**
Diagnostic	"All GM crops begin life in the laboratory. Scientists use a "gene gun" or an infectious bacterium to introduce foreign genes encoding the desired trait(s) into clumps of plant cells. Because genetic modification is a random, hit-or-miss process that scrambles plant DNA, most of these lab experiments are failures. GM plants grown from these modified plant cells often have obvious deformities and are weeded out. But those with more subtle problems are frequently missed, and can end up in the fields for outdoor testing, or even be approved for commercial use" (FoE 2004a, p.1) "In genetic engineering, the 'genes' responsible for a specific characteristic (called traits) are taken from one organism and forced into the DNA of another organism. In this way the characteristics of one species can be unnaturally bred into a completely unrelated one – across the boundaries between species and even plant and animal kingdoms" (ACB 2011a, p.1). "GMOs go through very little testing for health and safety… It is quite normal for a GMO to be tested for just 90 days on rats. That's all. Even with this minimal testing, scientists are finding early warning signals that GMOs may not be safe in the long-term" (ACB 2011c, p.3)
Prognostic	"Countries must ensure that their national regimes meet their legal obligations as Parties to the Cartagena Protocol, and that its emphasis on using the precautionary principle is respected… Biosafety policies need to serve human, environmental, cultural, and socio-economic well-being, rather than trade interests" (FoE 2015, p.35) "Every country should have the right to adopt precautionary measures on GMOs, including bans and moratoria. Alliances between biotech companies and pro-biotech governments formed to threaten countries taking precautionary measures against GMOs with trade sanctions are outrageous and unethical" (FoE 2004b, p.50)
Motivational	"We often hear about products that have design faults, which must be brought back to the factory because they don't work or are dangerous. However, if we find there are problems with GMOs, these cannot be returned to the lab. GMOs will continue to spread and we will not be able to undo the damage that is has caused" (ACB 2011a, p.2) "Science and society do not proceed on the basis of a constructed consensus, as current knowledge is always open to well-founded challenge and disagreement. We endorse the need for further independent scientific inquiry and informed public discussion on GM product safety and urge GM proponents to do the same" (FoE 2014, p.35)

Agroecology

Frame	**Agroecology**
Summary sentence	Agri-biotech as a destructive, inappropriate response to the issue of food security
Primary framing task	Prognostic
Position	The increasing reliance on industrial agriculture associated with biotechnology equates to ecological vulnerability not sustainability. Global food security depends on the health of the entire agro-ecosystem and the social system in which it's embedded. Agroecology acknowledges this, and advocates working *with* nature and harnessing the wealth of existing indigenous knowledge, using local methods suited to local conditions to produce culturally appropriate and nutritious food in a sustainable way. Seed has natural and symbolic significance as a vessel of life, and cannot legitimately be owned or patented. Nature is resilient and adaptable but that ability is held within its biodiversity and freedom to flourish, which are at grave risk from biotech and industrial agriculture.
Metaphors	Bio-piracy
Exemplars	Examples of contamination Evidence suggesting increasing weed and insect resistance Evidence suggesting loss of many seed varieties Studies demonstrating the benefits of agroecological methods Evidence suggesting that smallholder agriculture produces the majority of the world's food and can continue to do so
Catch-phrases	Gene revolution One-size-fits-all (approach of industrial agriculture)
Depictions	Agri-biotech industry as ignorant of nature's inherent worth & complexity
Visual images	Images displaying diversity of crop varieties Images depicting biodiversity e.g. bees pollinating flowers, butterflies etc Images depicting effective agroecological methods in action e.g. intercropping to control pests rather than using pesticides Images depicting vast monocrops
Root of the issue	Industrial agriculture (including biotechnology) is contributing to the rapid depletion the world's natural resources, radically undermining biodiversity and the earth's natural resilience.
Consequences	Loss of biodiversity, increased dependence on vulnerable monocrops, loss of species & habitats, water pollution and overconsumption, and other forms of environmental degradation. Reduced biodiversity seriously limits the earth's natural capacity to adapt to changes in climate and environment and in doing so reduces global food security.
Appeals to principle	Inherent value of nature

Framing Component	**Agroecology Frame: Illustrative Quotes**
Diagnostic	"To the extent that GM crops like *Roundup Ready* soy facilitate expansion of monocultures, they also reduce a nation's food diversity and security" (FoE 2006, p.13) "These [intellectual property laws on seeds] contribute to the destruction of cultural, spiritual and biological diversity and prevent the majority of farmers from conserving and sustainably using the millions of varieties of food crops they develop and adapt to changing needs and local agro-ecosystems" (FoE & La Via Campesina 2009, p.1) "The biotech industry's dream of the large-scale introduction of GM crops around the globe would further exacerbate the ecological vulnerability already associated with monoculture agriculture" (FoE 2004b, p.5)
Prognostic	"The most effective way of supporting small-scale farmers is through agroecological approaches to farming. These focus on small-scale sustainable agriculture; locally adapted seed and ecological farming that better addresses the complexities of climate change, hunger, poverty and productive demands on agriculture in the developing world" (ACB 2010, p.5) "More likely cause for hope, perhaps, is the steady growth in the organic foods market. Increasingly, consumers are turning away from foods produced using chemical-intensive, industrial farming practices, and hazardous genetic manipulation technologies, and to healthy foods grown without chemicals and insertion of foreign genes" (FoE 2008, p.17)
Motivational	"There is an urgent need to adopt an agro-ecosystems approach that focuses beyond genetic resource conservation, to implement other biodiversity-enhancing methods on farms, such as integrated ecological pest and soil management. However, these cannot co-exist with agricultural strategies that promote monoculture industrial farming models and uniform technology packages as those being offered by the gene and green revolutions" (ACB 2011b, p.16)

Frame	**Agropoly**
Summary sentence	Agri-biotech as a controlling and misleading response to the issue of food security
Primary framing task	Diagnostic
Position	Global food insecurity is exacerbated by the fact that multinational agribusinesses are seizing control of the world's food supply. There is a state of oligopoly consisting of a small (and consistently decreasing) number of large agribusinesses dominating the market for seeds and agricultural inputs. These corporations are unacceptably powerful, pushing agri-biotech on farmers worldwide. They use subversive and sometimes illegal methods to increase their profits and gain further control. This quest for profits and power is thinly veiled behind the rhetoric of food security and sustainability. The dominance of the biotech industry is built upon a system of deception and misinformation, from misdiagnosis of the problem of hunger and food insecurity right through to misleading statistics about the prevalence and efficacy of biotechnology.
Metaphors	Agropoly Trojan horse Corporate colonialism David & Goliath Revolving door Wolf in sheep's clothing
Exemplars	Evidence suggesting links between industry lobbyists and policymakers Examples of industry funded research used to promote biotech Evidence suggesting the increasing prevalence of mega-farms and disappearance of small farms Projects that appear philanthropic but advance industry interests Evidence refuting the claims of agribusiness e.g. • that drought-tolerant maize could revolutionise African agriculture • that GM technology has reduced pesticide use • that biotechnology is the norm in global agriculture Allegations of subversive behaviour e.g. • surveillance of farmers suspected of patent infringement • infiltration by contamination • misleading PR campaigns
Catch-phrases	Force-feeding The big 10, 6, 3… Golden hoax Broken/false promises Empty propaganda Playing dirty Sowing secrecy Behind closed doors
Depictions	Agribusiness as an uncontrollable monster Agribusiness as inhuman, arrogant and dangerous Agribusiness and industry reps as 'mythmakers'
Visual images	Images of protest Mega-scale production e.g. multiple combine harvesters in vast fields of wheat Images depicting agri-chemical application

Root of the issue	Multinational agribusinesses have too much power and are not subject to sufficient regulation. Driven by profit, they push biotechnology using whatever means necessary, seizing control of world food systems in the name of global food security. The purported benefits of agri-biotech are largely false, and the industry is propped up by a system of secrecy and lies.
Consequences	Unless national governments and multilateral organisations limit the powers of multinational agribusinesses, their control over world food systems will continue to grow, and power will become concentrated in ever fewer hands. This will culminate in total monopolisation of world food systems at the expense of democracy and corporate accountability.
Appeals to principle	Democracy Transparency

Framing Component	**Agropoly Frame: Illustrative Quotes**
Diagnostic	"Encouraging the use of proprietary seed makes previously independent farmers dependent on the yearly purchase of the proprietary seed and the associated agrochemicals (fertilisers, herbicides, and pesticides). The farmers' food supply is now dependent on the external inputs from a small number of agricultural biotechnology companies" (ACB 2010, p.12) "The biotechnology industry has spread a lot of myths about what GMOs can do. These are not based on fact and have been shown to be false in reality" (ACB 2011c, p.1) "Uncritical enthusiasm for agriculture biotech is fostered by a sophisticated and well-funded public relations effort on the part of the biotech industry, which spends US$50 million per year to promote its products in ways that are often deceitful and unethical" (FoE 2006, p.14)
Prognostic	"It is time for governments to take responsibility for the unethical behavior of the proponents of GM seeds and food, putting the interests of people and the environment first. Governments must stop giving unacceptable privileges to companies like Monsanto, and stop endorsing the misleading claims of organizations like ISAAA" (FoE 2006, p.5) "Corporations and donor agencies should not be allowed to dictate corporate-driven food and agricultural policies that undermine sustainable agriculture. Governments and donors should focus on agroecology to build people's food sovereignty instead of funding failing and polluting GM crops-based agriculture… The public must be involved in decision-making on GMOs, as set out in Article 23 of the Cartagena Protocol and they must have access to relevant information in order to do so meaningfully… Public research agendas must be demand and needs driven, instead of serving the interests of the private sector" (FoE 2015, p.35)
Motivational	"With the current economic and environmental crises, global resistance against transnational corporations has become an urgent necessity. A fair society organised to address people's needs and guarantee their rights cannot be built in co-existence with corporations that grab power and finite resources. We are calling for collective action from all of those who share our vision of a sustainable world. There has never been a more important time to globalise our struggles, and globalise hope" (FoE et al 2012, p.27)

Frame	**Food Sovereignty**
Summary sentence	Agri-biotech as an unjust and disempowering response to the issue of food security
Primary framing task	Prognostic
Position	Agricultural biotechnology is a direct threat to food sovereignty. Food security is about more than producing enough food. It is about having the right to sufficient nutritious and culturally appropriate food. This includes all people having the freedom to save seed, to define and own their own agriculture systems, and to produce food through ecologically sound and sustainable methods. Agri-biotech undermines this right, particularly through seed patenting which takes ownership of food systems out of the hands of producers
Metaphors	
Exemplars	Evidence of rising seed prices and fewer choices available to farmers Evidence suggesting biotech leads to reduced freedoms for farmers e.g. to save seed, to subsistence farm Examples of reduced freedoms for consumers e.g. to know what they're eating Evidence of human rights violations e.g. forced evictions & land acquisition Examples of farmers prosecuted for violating IPPRs by saving seed
Catch-phrases	Right to choose/decide
Depictions	Agribusinesses as perpetual perpetrators of human rights violations Agribusinesses as unwanted saviours of smallholder farmers
Visual images	Images depicting indigenous farmers successfully employing traditional techniques Images of failed GM crops and despairing farmers
Root of the issue	Biotechnology is being forced upon farmers, communities and consumers the world over at the expense of food sovereignty
Consequences	Smallholder farmers and communities are losing the fundamental rights and freedoms that allow them to make choices about what food to produce and how to produce it. The loss of these rights and freedoms is unacceptable in itself, but also presents a threat to global food security
Appeals to principle	Human rights & freedoms Social justice

Framing Component	**Food Sovereignty Frame: Illustrative Quotes**
Diagnostic	"This 'intellectual property protection' criminalizes the age-old practice of seed-saving, the farmer's most fundamental right. In many cases, however, farmers who never saw or signed this agreement have been sued for violating it, their signatures forged by seed dealers" (FoE 2006, p.10) "Decisions taken by the EC [executive council] authorising the import, release and marketing of GMOs adversely affect the fundamental human rights of the public. These rights include inter alia, the right to nutritious, safe and culturally acceptable food, the right to informed choice, the right to fair administrative decision making, the right to democratic participation, the right to save and exchange seeds, and the right to a safe and healthy environment" (ACB 2005, p.4)
Prognostic	"The answer to the food needs of Africans will come from Africa. We are blessed with good vegetation, rich soil, bequest of local wisdom in agriculture and farming. Ecological agriculture is what we need and is more important than any Revolution" (FoE 2012, p.7) "Working for food sovereignty involves each person, family, community, organization, movement, government and region learning about the ecosystems with which they interact, which provide them with such a generous supply of all those things needed for life including food, medicine, shelter and welfare. But this interaction also implies a commitment not only from the community, but also from governments, who should be implementing policies that really benefit the people and the natural heritage of each country" (FoE 2011a, p.30)
Motivational	"The women and men who practice small-scale biodiverse farming not only create and conserve the world's crop genetic diversity but in the context of the food, climate, energy and economic crises, they provide the only solution for feeding the world's hungry. And the resilience and adaptability of these systems is our best defence against climate chaos. It is therefore urgent to implement legally-binding Farmers' Rights. Realising these rights will underpin the dynamic conservation and sustainable use of agricultural biodiversity and will ensure equitable sharing of benefits" (FoE & La Via Campesina 2009, p.1)

Inevitability

Frame	**Inevitability**
Summary sentence	Agri-biotech as a necessary and effective response to the issue of food security
Primary framing task	Diagnostic
Position	The changing climate and the rapidly increasing population mean that we need to produce more food in order to feed the world. The prevalence of GM crops is increasing, and this demonstrates growing acceptance of the necessity and efficacy of biotechnological approaches to addressing food insecurity. The only way of meeting increasing global demand for food on existing agricultural land is to increase yields using biotechnology.
Metaphors	Population explosion
Exemplars	Statistics on population growth Statistics on the predicted increase in global food production required to feed future generations (usually UN, World Bank etc) Evidence demonstrating the increasing prevalence of GM crops worldwide Evidence suggesting increased crop yields through adoption of agri-biotech
Catch-phrases	Feeding the world Meeting the needs of a growing population Helping to nourish a growing world
Depictions	Agribusinesses as contributing to an important global mission Anti-biotech campaigners as ignorant to an inevitable truth
Visual images	Images indicating population growth e.g. bustling city streets Graphics showing the yield increases required to feed the growing population Images depicting high yields gained through agri-biotech e.g. grain pouring from a chute, trucks full of grain/produce
Root of the issue	Global food insecurity is rooted in the increasing pressure put on the earth's limited space and resources by a rapidly increasing population
Consequences	Failure to accept, promote, and fully engage with biotechnological approaches to increasing food production will not only increase global food insecurity but will also threaten global social, political, economic and ecological stability
Appeals to principle	Common sense Authority of multilaterals stating the need for increased food production

Framing Component	**Inevitability Frame: Illustrative Quotes**
Diagnostic	"Global demand for food, energy, fiber and other materials is growing dramatically, but the resources of our planet are not" (Monsanto 2013b, p.ii) "The facts are simple and sobering. By the year 2050, humanity will need to double the amount of food produced in the world to meet the demands of the growing population. With 80 percent of the world's arable land already in production, increasing demand for food poses extraordinary challenges" (Monsanto 2009, p.8) "There is a widely held view in the international scientific and development community that conventional crop improvement alone will not allow us to meet the global food demands of 2025" (ISAAA 2000, p.1)
Prognostic	"The efforts being directed towards addressing production constraints cannot be addressed by conventional breeding alone" (ISAAA 2009b, p.1) "We will have to feed more people in better ways by 2050, while facing global climatic changes. To achieve this goal, all technologies, including biotech, will be required…" (ISAAA 2015, p.3) "Innovation is an essential part of our everyday lives in areas like medicine, communications and transportation. It is also essential in agriculture, to enable increased crop productivity and efficiency and improved environmental efficiency and stewardship" (Monsanto 2013b, p.2)
Motivational	"It is critically important that the public sector and international development institutions in both industrial and developing countries invest in the new technologies to ensure equitable access and benefits from the enormous potential that transgenic crops offer in terms of increased productivity, more nutritious food, and global food security" (ISAAA 2000, p.60) "…If we do not succeed, the world will have to face tremendous instability, unrest, and wars and the ecological equilibrium of our planet will be in jeopardy!" (ISAAA 2015, p.3)

Frame	**Together for Sustainability**
Summary sentence	Agri-biotech as a responsible and environmentally friendly response to the issue of food security
Primary framing task	Prognostic
Position	We need to produce more food for the world's growing population, but we also need to do this responsibly. It is possible to meet increased demand by sustainably intensifying agricultural production using biotechnology. This is not something that can be achieved in isolation – it is a shared challenge which requires a unified response, stewarding the world's resources and producing more whilst also conserving more for future generations
Metaphors	–
Exemplars	Statistics reporting improved environmental performance due to biotechnology e.g. reduced pesticide use, reduced water consumption, reduced greenhouse gas emissions Examples of complementarity between agri-biotech & sustainable farming methods e.g. conservation tillage Accounts of industry sustainability initiatives e.g. Water Efficient Maize for Africa (WEMA) & Resilient Economic Agricultural Practices (REAP) Accounts of biodiversity & conservation initiatives e.g. honeybee & monarch butterfly projects, soil health & water conservation programmes
Catch-phrases	Meeting the needs of future generations Feeding the world's growing population Produce more, conserve more, improve lives Growing more on every acre We can't do it alone Working for a better tomorrow
Depictions	Agri-biotech industry as pioneers of sustainable business Agribusinesses as open to dialogue, and important partners in the shared international sustainability challenge
Visual images	Images suggestive of a healthy environment e.g. • green and diverse landscapes (sometimes in contrast with cracked/arid ground – associated with WEMA & drought tolerance) • protected areas such as forests & rivers • close-ups of green shoots or leaves / water in motion Images depicting farmers benefiting from sustainable methods e.g. con-till Images of communities & children engaged in sustainability initiatives MDG symbols/indicators
Root of the issue	The changing climate and the growing population mean that more food needs to be produced, but this must be done sustainably if the world is to remain food secure into the future. We have a responsibility to pass on a healthy environment and a food secure world to future generations
Consequences	Failure to adopt biotechnological approaches to sustainable agriculture (including public-private partnerships and multi-stakeholder initiatives such as WEMA, AGRA etc) will make it increasingly difficult to feed the world's growing population without encroaching on protected land and damaging the natural environment
Appeals to principle	Responsibility to people & planet Responsibility to future generations

Framing Component	**Together for Sustainability Frame: Illustrative Quotes**
Diagnostic	"The challenges facing agriculture are challenges facing us all. We must meet our present needs and at the same time prepare for the needs of a growing population" (Monsanto 2009, p.i) "Rising affluence, increasing urbanization and the needs of our growing planet are putting pressures on our environment and our ability to support these demands sustainably" (Monsanto 2012, p.3) "As consumers and members of society, our people at Monsanto are keenly aware of the need to safely and sustainably meet demand for a global population projected to reach more than 9.6 billion by the year 2050" (Monsanto 2013b, p.2)
Prognostic	"Farmers will need to sustainably intensify production to meet demand" (Monsanto 2012, p.8) "Sustainable intensification is key to meeting food security needs for our growing planet while also reducing agriculture's impact on the environment" (Monsanto 2014b, p.20) "It would be possible to expand the land devoted to crops; but that would require destroying forests and putting wildlife and biodiversity at risk. The only environmentally sustainable alternative is to increase productivity on the fertile, nonerodible soils already in crop production" (Monsanto 2009, p.8)
Motivational	"No single company or industry can tackle these challenges alone. Working together, however, we can create sustainable solutions for the world's future generations" (Monsanto 2016, p.4) "Topics like: climate change, preserving natural resources and growing enough food to nourish our world are not only critical for today, but for the future" (Monsanto 2014a, p.3)

Frame	**Nature-Enhancing Technology**
Summary sentence	Agri-biotech as a technologically sound and safe response to the issue of food security
Primary framing task	Prognostic
Position	There are safe and effective technological solutions to global food insecurity. Nature presents challenges that need to be overcome such as weeds, pests and changing climate. However, nature also has many great resources that can be harnessed and enhanced through agricultural biotechnology to produce more and better food. Plant breeding has been part of agricultural practice for many centuries, and many of the fruits, veg and grain we enjoy today are the product of selective cross-breeding. This can be done with more speed and efficiency using modern biotechnology.
Metaphors	Research engine
Exemplars	Branded vegetables with characteristics such as enhanced flavour, uniformity, and herbicide/pesticide resistance Seeds with built-in pest resistance and herbicide tolerance e.g. *Roundup Ready Soy* & *YieldGard Insect Protected Corn* Seeds with beneficial traits such as drought tolerance & enhanced nutritional value e.g. golden rice & WEMA Stacked traits to address multiple agricultural challenges at once e.g. *Genuity SmartStax*
Catch-phrases	Doing more with each seed Yield-enhancing technology Integrated solutions Innovation breeds leadership, and leadership demands innovation
Depictions	Weeds, insects and the changing climate as yield-robbing stressors Subsistence farming as inferior Anti-biotech movement as technophobes
Visual images	Large, colourful, and uniform fruit & vegetables (often accompanied by brand logo & info or slogan) Images depicting successful application of agri-biotech e.g. a farmer in a field with a healthy and abundant looking crop Images depicting advanced science & technical prowess e.g. lab environment, petri dishes, rows of seedlings being monitored with technical equipment
Root of the issue	Global food insecurity is exacerbated by nature's inability to adapt quickly and efficiently enough to the changing climate and the changing needs and demands of food producers and consumers
Consequences	Until an enabling environment for research, development and investment in modern technological approaches to agriculture is fostered, global food security will remain out of reach
Appeals to principle	Scientific knowledge Technological progress Modernity Neo-liberalism

Framing Component	**Nature-Enhancing Technology Frame: Illustrative Quotes**
Diagnostic	"Up to 80 percent of Africa's population depends on agriculture, but per capita productivity remains the lowest in the world as a result of, among other factors, minimum application of modern scientific and agricultural technologies" (ISAAA 2009b, p.1) "For farmers in Africa today, productivity is low and poverty high because far too little science has been brought to farming" (ISAAA 2009b, p.3) "Despite cassava's natural drought tolerance and ability to flourish on marginal lands, it is very susceptible to various pathogens and virus diseases. In fact, the popular Ebwanateraka cassava has been virtually wiped out of production due to cassava brown streak disease and cassava mosaic disease" (Monsanto 2012, p.78)
Prognostic	"We are working to develop seeds that will grow vegetables and fruits that offer better nutrition, convenience and flavor. In addition, we are creating products that help farmers make the most of their land by growing crops with greater uniformity, disease resistance, earlier maturity, and better shipping ability" (Monsanto 2009, p.25) "We're also innovating in the biotech field to develop crops with benefits beyond what could be traditionally accomplished – such as insect, disease, and drought resistance" (Monsanto 2013a, p.3)
Motivational	"It is vital to deploy new technologies and substantially increase investment in R&D to achieve the desired growth in agriculture which is essential for India's stability and prosperity" (ISAAA 2008b, p.4) "Rising food prices and the threat posed by competition for food crops by the biofuel industry imply that there is need to invest in technologies that will contribute towards the production of abundant and cheaper food" (ISAAA 2009b, p.5)

Frame	**Missed Opportunities**
Summary sentence	Agri-biotech as an under-prioritised response to the issue of food security
Primary framing task	Diagnostic
Position	Excessive regulation, unwarranted safety concerns, and misinformed activists are preventing the wealth of potential benefits of agricultural biotechnology from being experienced. There has been a slow uptake of transformational technology because of onerous regulation and procedural delays caused by activists – they are the real misinformers. The success of biotechnological approaches to addressing food insecurity is not guaranteed – without regulatory approval, the right investments, and protection of IPPRs, industry hands are tied
Metaphors	Luddites
Exemplars	Examples of nations which have allegedly prospered through legislative environments which support agricultural biotechnology e.g. South Africa Examples of specific opportunities that have been missed through non-acceptance of biotechnology e.g. Africa missing the original 'Green Revolution'
Catch-phrases	Lack of knowledge and awareness Missing out
Depictions	Anti-biotech movement as ignorant scaremongers Resistance to agri-biotech as unscientific naysaying
Visual images	–
Root of the issue	Agricultural biotechnology has great potential but is seriously underutilised, particularly in Europe and Africa, because of unfounded fears and scaremongering
Consequences	Many people are unnecessarily missing out on the potential benefits of agricultural biotechnology. Not only is this trapping many smallholder farmers in poverty, it is also undermining global food security now and into the future
Appeals to principle	Science Rationality

Framing Component	**Missed Opportunities Frame: Illustrative Quotes**
Diagnostic	"The adoption of modern biotechnology can be hampered by inaccurate, unreliable information, lack of knowledge and awareness at all levels of society" (ISAAA 2009b, p.28) "Unfortunately, there are challenges that the field is faced with as recognized by the experts. One is the…small but committed group of critics who have instilled fear among consumers, policy makers, and governments through misinformation and widespread campaigns using scare tactics and unproven claims" (ISAAA 2015, p.ii) "There are still millions of smallholder farmers being condemned to perpetual poverty by Western-financed NGOs who deny them the right to use improved seeds under the pretence of protecting their health, livelihood, traditions, or culture" (ISAAA 2015, p.60)
Prognostic	"Monsanto is committed to helping farmers double the yields of their corn, cotton, soybean, and spring-planted canola crops by 2030… Although we hope to work with farmers in every country, we believe this goal will initially be achievable in countries that 1) provide timely biotech crop approvals and 2) support intellectual property rights that facilitate private-sector seed investments" (Monsanto 2009, p.10) "As soon as GM technology will be freed from automatic, excessive, precautionary regulation, hundreds of public sector projects for the public good would win the minds and hearts of the citizens around the world and this will end the unprecedented hysteria on GMOs" (ISAAA 2015, p.6)
Motivational	"If we meet that challenge, access to biotech will lift these farmers out of poverty and allow them to escape the vicious circle of subsistence farming. But the challenge requires the full use of our energies and abilities right now. The markets are moving fast and resource poor farmers must be included if they are not to be made victims of the powerful changes that biotech will bring to all of us" (ISAAA 1998, p.3)

Frame	**Farmers Know Best**
Summary sentence	Agri-biotech as an empowering and farmer friendly response to the issue of food security
Primary framing task	Prognostic
Position	The best way to address the challenge of global food security is for agribusinesses to work together with farmers, harnessing their extensive knowledge. Farmers know what works, and agribusinesses are committed to listening, responding to their needs, and equipping them with the best possible tools for the job, including biotech products. These products empower farmers, giving them the opportunity to increase their productivity and broadening the choices available to them. It is in the industry's best interests to look after the needs of farmers because effective products sell, but it is also in the public interest as it improves global agricultural productivity and sustainability – a win-win situation
Metaphors	–
Exemplars	Evidence suggesting that more and more farmers are adopting agri-biotech methods i.e. demonstrating that the products must work Stories/accounts of farmers who have benefited from the technology e.g. empowered through improved seed choices Examples of complementary benefits for farmers, shareholders, processors, consumers and the environment
Catch-phrases	Win-win Farmers are masters of risk-aversion Farmers are the best judge When the farmer succeeds, we succeed Farmer focused Putting the right tools in the hands of farmers
Depictions	Farmers as savvy Farmers as innovators Agribusinesses as equippers & champions of farmers Farmers and agribusinesses as effective partners
Visual images	Images of collaboration between agribusiness and farmers e.g. farmers and industry reps assessing/discussing crops Images of farmers empowered through agri-biotech e.g. with their thriving crops
Root of the issue	Agricultural biotechnology is an increasingly important tool for farmers around the world. Farmers are demonstrating both that they want the technology and that it works
Consequences	Failure to provide agri-biotech tools would disempower farmers, reducing their capacity to produce good harvests both for their own benefit and for the benefit of global society
Appeals to principle	Respecting the knowledge/expertise of the farmer

Framing Component	**Farmers Know Best: Illustrative Quotes**
Diagnostic	"For farmers in Africa today, productivity is low and poverty high because far too little science has been brought to farming. Currently, only 4 percent of Africa's farmland is irrigated, less than 30 percent is planted to improved seeds, and average fertilizer use is only 9 kg per hectare, compared to 117 kg per hectare in the industrial world" (ISAAA 2009b, p.3) "The company - my company, Monsanto - had focused so much attention on getting the technology right for our customer - the grower - that we didn't fully take into account the issues and concerns it raised for other people… And so, instead of happily ever after, this new technology became the focal point of public conflict, the benefits we saw were jeopardized, and Monsanto became a lightning rod" (Verfaillie 2000)
Prognostic	"Inside that simple seed is a powerhouse of technology, the likes of which farmers have never had access to before. It's that innovation that will carry us into the future, knowing that when the farmer succeeds, we succeed" (Monsanto 2008a, p.2) "We recognize Monsanto's business is only successful when farmers are successful. So our focus is on applying innovation and technology to make our farmer customers more productive and profitable" (Monsanto 2005, p.5) "A quiet, unwavering figure has remained for generations at the center of solutions to some of our world's most pressing needs; the farmer" (Monsanto 2012, p.3)
Motivational	"Feedback from farmers, the primary beneficiaries of crop biotechnology, speaks for the technology. It is farmers first, after all, who will make the crucial decision on whether to plant a particular crop or not, to sustain its adoption, and to influence peers to follow their lead" (ISAAA 2013, p.ii) "This is a technology that reduces farmer costs, and increases the ease and efficiency of the critical work they do - that you do. Sixty percent of the economic benefits of insect-resistant cotton accrue to the cotton grower. Soybeans growers in Iowa have reduced the cost of production by between $6 and $11.50 an acre" (Verfaillie 2000)

Appendix C: Core Frames Reproduced in the Media

Frame	Illustrative Quotes
Frankenfood	"Monsanto's biotech crops are the fruit of a technology developed in the 1970s that allowed scientists to directly manipulate DNA, the substance that regulates all life. The new technique offered a quantum leap over the old method--selective breeding--whereby people created desirable changes in crops and animals. Scientists would no longer be constrained by species barriers; they could take a gene for a fish and try it in a plant, or a gene from a firefly and stick it in a cow. Researchers have created scores of potentially useful foods containing genetic alterations. But so far only a handful have gained wide acceptance in the marketplace" (Gillis & Swarsdon 1999 in *The Washington Post*) "The notion of being able to move genes between species was an alarming thought,'' said Alexander Capron, a professor of law and medicine at the University of Southern California in Los Angeles. ''People talked about there being species barriers -- you're reorganizing nature in some way" (Eichenwald 2001 in *The New York Times*)
Agroecology	"Recent crop-breeding innovations may be impressive, but they do not hold answers to the most pressing question: namely, how to move away from industrial monocultures and the inevitable damage and vulnerability they bring... What matters most is resilience. And resilience cannot be delivered without rethinking the fundamental principles of our food and farming systems… A viable alternative exists in the shape of diversified agro-ecological systems. In other words, diversifying farms and farming landscapes – replacing synthetic chemical inputs, optimising biodiversity and stimulating interactions between different species, as part of holistic and regenerative strategies to build long-term soil fertility, healthy agro-ecosystems and secure livelihoods" (De Schutter 2017 in *The Guardian*) "Growing more and more corn and soy per acre is a terrible measure of success when it comes at the cost of destroying soil and damaging health. Agroecology measures its success by a yardstick that includes not only bushels and calories but by how well food nourishes people while regenerating soil and water and helping more farmers make a good living. Agroecological techniques also sequester carbon (industrial methods release it); encourage multicropping, which regenerates the ecology of the soil instead of depleting it; preserve local seed varieties instead of replacing them with patented, unaffordable varieties; sustain local food cultures and people; support local businesses operating close to farms; and create jobs. Agroecology is more than a set of clean techniques: It's an ethos that encourages defining what a food system really should be" (Moss & Bittman 2018 in *The New York Times*)

Agropoly	"What Monsanto wished for from Washington, Monsanto - and, by extension, the biotechnology industry - got. If the company's strategy demanded regulations, rules favored by the industry were adopted. And when the company abruptly decided that it needed to throw off the regulations and speed its foods to market, the White House quickly ushered through an unusually generous policy of self-policing" (Eichenwald 2001 in *The New York Times*) "The real problem with engineered crops, as this column has been pointing out for several years, is that they permit the big biotech companies to place a padlock on the food chain. By patenting the genes and all the technologies associated with them, the corporations are manoeuvring themselves into a position from which they can exercise complete control over what we eat. This has devastating implications for food security in poorer countries… One of USAID's stated objectives is to "integrate GM into local food systems". Earlier this year, it launched a $100m programme for bringing biotechnology to developing countries. USAID's "training" and "awareness raising" programmes will, its website reveals, provide companies such as "Syngenta, Pioneer Hi-Bred and Monsanto" with opportunities for "technology transfer" into the poor world. Monsanto, in turn, provides financial support for USAID. The famine will permit USAID to accelerate this strategy. It knows that some of the grain it exports to southern Africa will be planted by farmers for next year's harvest. Once contamination is widespread, the governments of those nations will no longer be able to sustain a ban on the technology" (Monbiot 2002 in *The Guardian*)
Food Sovereignty	"Food sovereignty focuses on food for people rather than internationally tradeable commodities. It values food providers rather than eliminating them. It localises food systems rather than encouraging dependence on inequitable global trade, and it takes control of the food system away from unaccountable corporations. It builds knowledge and skills that conserve and develop local food production, and rejects alien technologies such as GMOs. It works with nature in diverse agro-ecological systems, rather than energy-intensive production methods which damage the environment and contribute to global warming. It is only through food sovereignty, using the knowledge and skills of these small-scale food providers and their technologies, that we will achieve a resilient food system that will guarantee our future food" (Mulvany 2007 in *The Guardian*) "Work is being done to manage water usage, to create seed varieties better suited to handle climate change, and to control flooding – but will it be enough? It's a major cause for concern, Khan feels. "As with all farming, climate change and international trade rules are the biggest factors facing the future of rice farming and supply. In Iran for example, it is cheaper to buy imported rice from China or India than locally produced rice. Promoting food sovereignty for farmers is central for the health of our planet and local economies all over the world." And it's small farmers who grow much of the world's rice. Their livelihoods – their very lives – depend on finding ways to protect their crops while meeting our insatiable hunger for rice" (Leonard 2018 in *The Independent*)

Inevitability	"Transgenic crops may be disparaged and dug up every time scientists grow them as part of their trials in the UK, but as Nature 's cover shows, the technology seems ripe to help feed a planet whose population will rise from 6.5 billion people, many of them already hungry, to around nine billion by 2040. It is a point stressed by crop experts such as Professor Chris Pollack of the University of Wales. 'To stop widespread starvation, we will either have to plough up the planet's last wild places to grow more food or improve crop yields. GM technology allows farmers to do the latter - without digging up rainforests" (McKie 2008 in *The Observer*) "The projected growth of the global population presents one of the most serious long-term challenges to world policy makers. To put it bluntly, if we fail to increase agricultural yields on our planet, people will starve. Faced with such a chilling scenario, it would be positively immoral for governments to reject GM out of hand" (*The Independent* 2008)
Together for Sustainability	"Our report - Reaping the Benefits - describes how different technologies, including GM, could contribute to a sustainably intensified agriculture in industrialised and developing countries. For example, GM could provide disease-resistant crops that minimise pesticide applications, and no-till agriculture that reduces soil erosion and fossil fuel use. And GM stress-resistant plants could allow yield to be maintained in regions affected by climate change… Biological science has progressed in leaps and bounds in the last decade. We now have the potential to come up with viable scientific solutions for feeding a growing population, and we have a responsibility to realise this potential" (Baulcombe 2009 in *The Guardian*) "In fact, genetic modification offers some promise for our overcrowded, overheated planet and for the nine billion people who will be living on it in 2050. Deserts are destined to spread, water will become scarce and disease hard to contain. GM crops could help alleviate these threats. Drought-resistant wheat as well as rice modified to generate high yields of vitamins will aid the fight against famine, while crops modified to make vaccines against infections such as hepatitis B will help doctors combat disease" (*The Observer* 2008)
Nature-Enhancing Technology	"Without human assistance, neither would we have potatoes, turnips, carrots, cabbages; nor cattle, sheep, goats or pigs. And what distinguishes all those agricultural products is that they are themselves the products of genetic modification, over a very long time, and in the open, not over a few weeks in a laboratory… this pioneering GM could be dangerous: undesirable characteristics might, undetected, be reinforced by imprudent fertilisation. Rogue or useless breeds would have to be ruthlessly culled. Modern GM presents no such dangers. It precisely inserts the required gene into the host DNA, accompanied by no other genetic material. It is economy itself" (Myers 2002 in *The Sunday Telegraph*) "Biotechnology offers an important opportunity to improve crops. In particular, genetic modification (GM) enables plant breeders to increase the potential of crops and reduce the timescales involved. It is especially useful in the case of African staples that have narrow gene pools or are slow-growing or difficult to cross" (Bailey 2014 in *The Guardian*)

Missed Opportunities	"The past decade and a half of scientific discovery has opened up a vista of even greater improvements, yet our reaction has been to reject them all. I refer to genetic science and the ability to modify a plant to make it resistant to pests, to need less fertiliser, as well as many more innovations. It is sensible to be cautious about science when it comes to our food. But we have rejected GM foods almost entirely. That rejection has been shared with the European Union, but it cannot be blamed solely on the EU: scares about "Frankenfoods'' and the antics of Lord Melchett and Greenpeace are just as responsible. Europe's unwillingness to accept even a trace of GM products in imported feedstocks forces other countries' farmers to steer clear too. And since the EU is one of the wealthiest regions on the planet, our rejection has set back progress in GM research and development hugely" (Emmott 2008 in *The Daily Telegraph*) "The opposition to genetically modified food is mostly a middle and upper class obsession, but the people who would benefit from such foods are often the poor. Golden rice could prevent the deaths of hundreds of thousands of people a year from vitamin A deficiency, but has been stymied for 15 years by opposition organised by western Green groups, especially Greenpeace. They are entitled to think that this philanthropic project is a bad idea, but they are buying their reassurance at the expense of the poor's health" (Ridley 2014 in *The Times*)
Farmers Know Best	"Over the decade, as costs fell and yields rose, farmers' incomes increased by an estimated $30 billion. By 2006, most of that benefit was reaped by the nine million farmers in developing countries who were harvesting GM crops" (Bridges 2008 in *The Daily Telegraph*) "If we are serious about allowing UK farmers to produce more food at a fair price to consumers while safeguarding our natural resources, they must be given the freedom to choose modern, efficient farming methods based on tried and tested science" (Little 2009 in *The Guardian*) "Conventional breeding methods are slow and often create genetic baggage that takes decades to undo. Only with the adoption of new technologies, including genetic modification, can we have a hope of improving yields… Currently, 17 million farmers grow GM crops on 12 per cent of the world's arable land. Farmers wouldn't grow those crops if they didn't benefit from doing so" (Trewavas 2013 in *The Telegraph*)

Appendix D: Opportunity Frame Signature Matrices

Terminator Technology

Frame	**Terminator Technology**
Summary sentence	Sterile seed technology as dangerous, unnatural and disempowering
Position	Seed is uniquely and inherently valuable, containing within itself the capacity to create new life. Sterile seed technology is in an affront to the natural world, risking this irreplaceable resource and commoditising seed for the sake of corporate profit. The technology is a conduit for corporate control of world food systems, forcing farmers to buy new seeds each year. The supposedly innocuous chemical inputs required by the technology will cause environmental harm, and the risk of contamination presents a serious threat to biodiversity and to agricultural productivity in the developing world
Metaphors	Terminator technology Suicide seeds Neutron bomb of agriculture Infection
Exemplars	Instances of contamination/cross-pollination Increase in crop uniformity (and therefore vulnerability)
Catch-phrases	Forcing farmers to buy more seed Killer (trans)genes
Depictions	Multinational agribusinesses as single-minded in the pursuit of profit, recklessly disregarding the wellbeing of farmers, society, and the natural world Sterile seed technology as abnormal/other/unnatural
Visual images	Images portraying the diversity at risk of being lost e.g. piles of different types/sizes/colours of seed Cartoons depicting terminator technology 'out of control'
Root of the issue	The pursuit of profit has driven multinational agribusinesses to push for even riskier developments than those already presented by agricultural biotechnology
Consequences	If the technology is commercialised, it will present a serious threat to food sovereignty, resulting in increased dependence on multinational agribusinesses. There will be immediate environmental health concerns, and reduced agricultural productivity because of contamination
Appeals to principle	Inherent value of nature Human rights & freedoms Democracy & transparency Safety & precautionary principle

Frame	**The Back Door to Africa**
Summary sentence	GM food aid as the illegitimate 'back door' to opening up African markets to agricultural biotechnology
Position	Food aid has become a mechanism through which the US government, largely driven by a powerful lobby of multinational agribusinesses, seeks to promote its own agenda. Large volumes of heavily subsidised GM grain are dumped on vulnerable and unsuspecting recipients under the guise of humanitarian aid. Recipient nations are presented with a false choice to either accept GM food aid or starve, when in fact more local and culturally appropriate solutions are often available. The primary motive behind donations of GM food aid is to open up new markets for multinational agribusinesses
Metaphors	Africa as America's dumping ground GM food aid as a Trojan-horse or back door to African markets Recipients of food aid as human guinea-pigs Corporate colonialism
Exemplars	Shipments of food aid contaminated with GM crops not approved for human consumption e.g. StarLink Nations recovering well from food crises without having accepted GM Contrasting American approach with 'best practice' e.g. EU, Japan & Norway donating money to purchase local food Linking AIDS treatment with the acceptance of food aid
Catch-phrases	Offloading surplus grain Playing with hunger Creating dependency Capturing new markets False choice Human experiment
Depictions	The US government (particularly USAID) as a mouthpiece for agribusiness Agribusinesses as powerful & profit-focused puppet masters
Visual images	Sacks of food aid (often USAID branded) being distributed to people experiencing famine
Root of the issue	Famine is being used as a means for multinational agribusinesses to extend their reach into developing countries under the banner of humanitarian aid
Consequences	GM food aid will lead to contamination, threatening native crops and allowing consolidation of corporate power over agricultural production in developing countries
Appeals to principle	Human rights & freedoms Safety & precautionary principle Democracy & transparency Social Justice

Frame	**Africa – Don't get Left Behind**
Summary sentence	The world food crisis as evidence of the need for agricultural biotechnology to ensure global food security
Position	Biotechnology and industrial agriculture are the key to Africa's future prosperity and food security. The benefits have clearly been demonstrated by the green revolution that took place in the 1980s, benefiting Asia and Latin America in particular. Given Africa's dependence on agriculture, vulnerability to the effects of climate change, and relative underdevelopment, GM crops have the potential to make a huge difference to African livelihoods. If resistance to biotechnology continues across the continent then Africa will be left behind as other nations modernise. This is not agricultural colonialism, it is liberation – African innovation for African people
Metaphors	Missed the boat
Exemplars	Evidence of other countries benefiting from agri-biotech e.g. South Africa, Asia & Latin America's green revolutions Evidence of opposition to agri-biotech resulting in limited agricultural productivity e.g. EU
Catch-phrases	Lagging behind Left behind Africa as 'the final frontier' for agri-biotech A green revolution for Africa
Depictions	African farmers who adopt GM seeds as pioneers African biotech scientists as innovators and key industry partners Opponents of agri-biotech as the real oppressors
Visual images	Successful biotech crops and trial crops being cultivated in African nations African farmers in dialogue with each other African farmers admiring healthy biotech crops African scientists at work in biotech labs African officials visiting or opening field trials, greenhouses, laboratories etc
Root of the issue	Africa has the potential to become self-sufficient in food production as well as prospering from export if it embraces agricultural biotechnology, but misguided safety concerns and fears of losing export markets because of EU resistance to agri-biotech are preventing widespread adoption
Consequences	If Africa fails to adopt agricultural biotechnology, the continent will miss the opportunity for its own green revolution and will be left behind as other continents, regions and nations increase in productivity and prosperity
Appeals to principle	Neo-liberalism Responsibility to people and planet Scientific knowledge & technological progress

Appendix E: Opportunity Framing & Counter-Framing Illustrative Quotes

Terminator Technology Framing & Counter-Framing

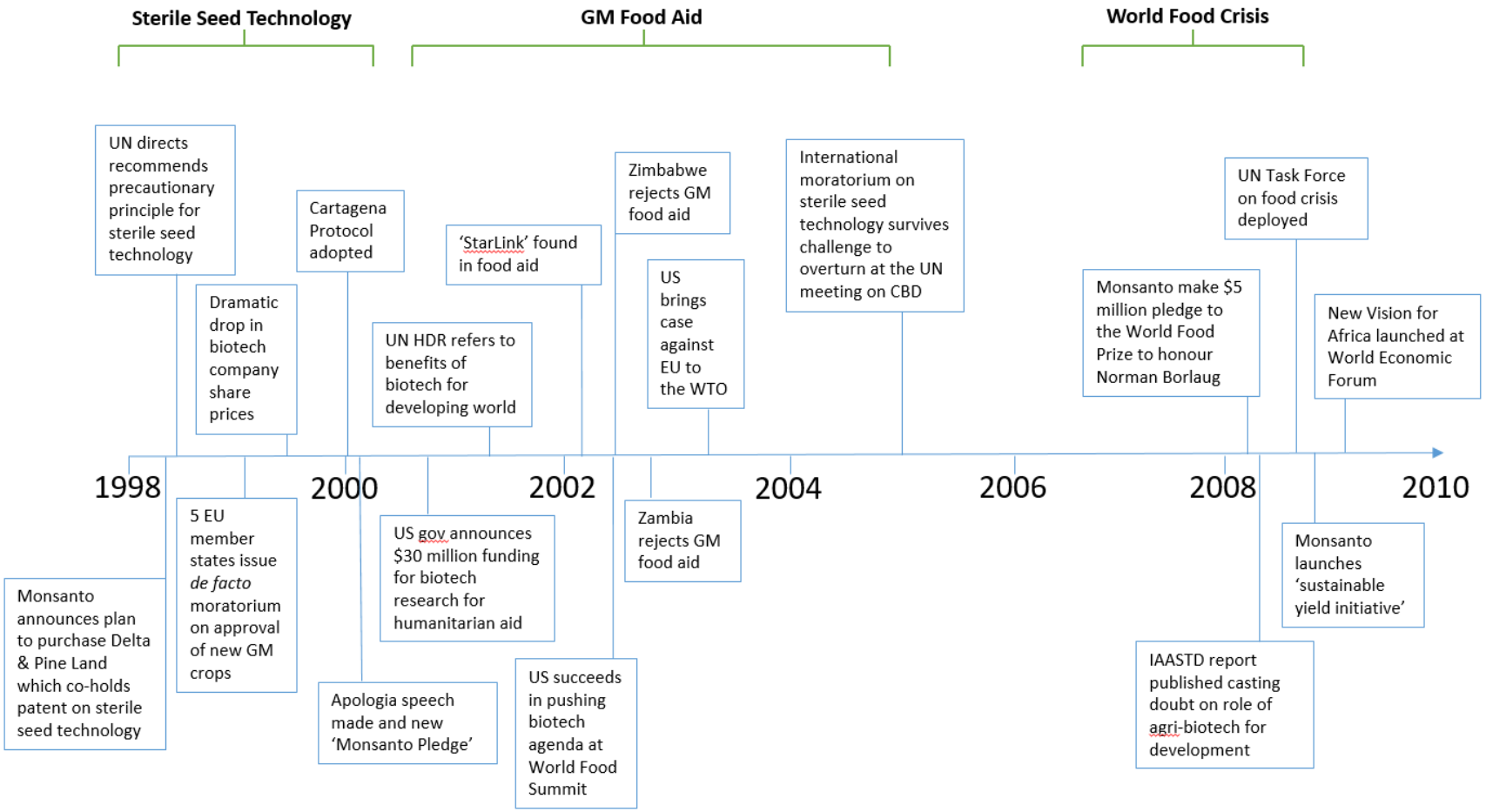
Framing Component	**Terminator Technology Framing:** Illustrative quotes	**Counter-Framing:** Illustrative quotes
Diagnostic	"In most cultures and for most people, seeds are synonymous with life, fertility and growth. Terminator technology is in complete contradiction to these fundamental values" (UK Working Group on Terminator Technology 2006, p.2) "Seed Freedom is threatened by the deliberate transformation of the seed from a renewable self-generative resource to a non-renewable patented commodity. The most extreme case of non-renewable seed is the 'Terminator Technology' developed with aim to create sterile seed" (Navdanya 2012, p.324) "This is an immoral technique that robs farming communities of their age-old right to save seed and their role as plant breeders" (Center for Education & Technology activist cited in Knight 1998b)	"This is a group of technologies… that could potentially be used to protect the investment companies make in developing genetically improved crops, as well as possibly providing other agronomic benefits" (Monsanto CEO cited in Brown 1999) "This is the next big breakthrough after discovering how to move genes into plants… You're talking about exquisite control of how plants respond" (Director of the Donald Danforth Plant Science Center cited in Feder 1999) "We think in the long run this will benefit farmers, and they will have access to many more varieties" (USDA spokesperson cited in Anderson 1998)
Prognostic	"'Terminator' technology to produce sterile suicide seed that cannot reproduce is an assault to the fundamental nature of seed as the source of reproduction of life and to the fundamental freedom of farmers. The introduction of such traits is designed to create a monopoly on the seed and food of the world and must be banned on a global level" (International Commission on the Future of Food and Agriculture 2002, p.22) "If these seeds were to cross-pollinate with some other crops then these farmers could see a 10% drop in production and that 10% could mean the difference between surviving and not" (FoE campaigner cited in *The Herald* 1999)	"Loss of cost savings from "brown-bagging" must be weighed against the productivity gains to the farmer from having superior new varieties that could increase crop values such as yield and quality... and reduce losses such as those due to pest or adverse soil and weather" (USDA cited in Knight 1998a) "It is really an incentive to improve varieties for farmers… It would mean increases in crop breeding within species that have been somewhat ignored - wheat and rice for example" (Delta & Pine spokesperson cited in *Associated Press State & Local* 1998)
Motivational	"Farmers could find that their seeds are infertile when it is too late. It could lead to a decline in food security for the poorest communities. This may be the neutron bomb of agriculture" (Chilean Centre for Education & Training cited in Vidal 1998)	"There are those who want to frighten people and who say that the world as we know it has ended, and that we are going where nobody has ever been before" (Director of Delta & Pine Land cited in Lambrecht 1998b)

Framing Component	**The Back Door to Africa Framing:** Illustrative quotes	**Counter-Framing:** Illustrative quotes
Diagnostic	"Food aid programmes when used systematically in impoverished countries serve as instruments for the dumping of production surpluses from Northern countries, creating dependency and contributing to the destruction of local production" (FoE 2002) "The shipment of whole corn kernels as food aid carries the danger of genetic contamination, as it allows GM grains to be planted in countries with neither biosafety regulations nor the capacity to deal with GM crops" (FoE 2004b, p.22) "The fact that the US gives priority to the promotion of GM crops in third world countries, rather than promoting solutions desired by recipient nations, is a major consequence of the economic interest of the multibillion dollar biotech industry in the US" (FoE 2003a, p.2)	"We want to help in this food emergency but we don't have a substitute (for the GM corn) and the volumes are not available anywhere else" (USAID official cited in Associated Press International 2002) "People around the world have been eating biotech food for years… Biotech food helps nourish the world's hungry population" (US trade official cited in Driscoll 2003) "The principal beneficiary of America's foreign assistance programs has always been the United States. Close to 80% of the USAID contracts and grants go directly to American firms. Foreign assistance programs have helped create major markets for agricultural goods, created new markets for American industrial exports and meant hundreds of thousands of jobs for Americans" (USAID official cited in Monbiot 2002)
Prognostic	"Every country has the right to decide the type of food it wants to accept for its citizens, and alternatives to GM food aid should always be available. Third World countries should not be faced again with the dilemma of taking GM food aid or nothing" (FoE 2003a, p.18) "The WFP and donors should not question sovereign decisions to impose restrictions on GM food aid… WFP and all donors should seek to guarantee and support local purchases of staple foods in recipient countries" (ACB 2004a, p. 14-15)	"Science is on our side, Americans are eating this food, nobody's getting sick from it, so consequently you've got to let our products in" (Senator for Iowa cited in Gersema 2002b) "The Bush administration is not going to sit there and let these groups kill millions of poor people in southern Africa through their ideological campaign" (USAID administrator cited in Agence France Presse 2002)
Motivational	"There is an urgent need for rules governing food aid aimed at achieving food security like responding to local food needs, emphasizing local purchasing, not undermining an adequate long-term food supply, and providing direct grants rather than loans requiring purchase of imports" (FoE 2003a, p.18)	"For the sake of a continent threatened by famine, I urge the European governments to end their opposition to biotechnology" (President Bush cited in FoE 2003a, p.15)

Africa – Don't get Left Behind Framing & Counter-Framing

Framing Component	**Africa – Don't get Left Behind Framing:** Illustrative quotes	**Counter-Framing:** Illustrative quotes
Diagnostic	"Up to 80 percent of Africa's population depends on agriculture, but per capita productivity remains the lowest in the world as a result of, among other factors, minimum application of modern scientific and agricultural technologies" (ISAAA 2009b, p.1) "Reluctance to approve GM crops particularly those ones proven to deliver high welfare gains is likely to deny farmers in the region the opportunity to harness the diverse benefits of GM crops and products" (ISAAA 2008a, p.2)	"The biotech industry continues to insist that GM crops are needed to tackle the food needs of a growing population, yet provides no evidence to support this claim. First of all, hunger is mainly attributable to poverty; lack of access to credit, land and inputs; and other political factors. Secondly, the majority of GM crops are not destined for hungry people in developing countries, but are used to feed animals, generate biofuels, and produce highly processed food products in rich countries. These facts suggest that GM crops have not increased food security for the world's poor" (FoE 2008, p.39)
Prognostic	"By far the highest priority for Africa is to put in place appropriate biosafety laws and corresponding regulations that are efficient and cost-effective for implementation" (ISAAA 2009b, p.31) "GM technology is not the preserve of the western world and so [our people] must come to understand that we are not passive recipients of technology but that we are, indeed, capable of defining our own biotechnology research and development agenda to solve uniquely Ugandan and African problems" (ISAAA 2015, p.2)	"Other countries in Africa will now follow suit as the international community and agribusiness bully Africa into adopting GM technology in the face of a global food crisis and on the pretext of introducing GM climate crops" (ACB 2009, p.3) "A major study by UN agencies has concluded that organic farming offers Africa the best chance of breaking the long inherent cycle of poverty and malnutrition" (FoE 2009, p.28)
Motivational	"The realities of agriculture in Africa make the case for urgent use of GM crops. However, the region is seriously lagging behind in the adoption and use of the technology while other regions of the world are reaping enormous benefits from it" (ISAAA 2008a, p.2)	"It is up to African civil society to be informed and actively engage with their governments as they draft their National Biosafety Frameworks to ensure that African food sovereignty and security remain at the top of the Agenda" (ACB 2009, p.8)

Appendix F: Discursive Opportunity Timeline



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