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dissertation entitled

SETTING THE STANDARD: COMPETING VALUES IN THE SOUTH AFRICAN RED MEAT INDUSTRY

presented by

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has been accepted towards fulfillment
of the requirements for the

Ph.D. degree in Sociology

Major Professor's Signature

12/5/03

Date

SETTTING THE STANDARD:
COMPETING VALUES IN THE SOUTH AFRICAN RED MEAT INDUSTRY

By

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A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Sociology

2003

ABSTRACT

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By

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Viewed as one means to achieve a more predictable and efficient trade system, standards and standardization are increasingly important for global agriculture and food (agri-food) trade. Despite their increasing importance, standards are often overlooked by social scientists as merely technical details. Using theoretical insights from the Sociology of Agriculture and Food, Social Studies of Science and Technology, and the diverse scholarly literature focusing on standards, this dissertation explores a range of cultural, economic, political and ethical issues surrounding the adoption of standards for the purposes of global trade. Qualitative methodology is utilized to study the entire South Africa red meat commodity network (e.g., producers, processors, and consumers) and the consequences that specific standards have on diverse actors within the network. An analysis of food safety and quality standards in the South African red meat industry within the context of global trade reveals the ways in which standards encourage and discourage the participation of more marginalized actors within the agri-food network. In addition, despite the marginal status of a large number of South African consumers, this work reveals that consumers play an integral part in shaping the future of South Africa's red meat industry. This dissertation contributes to a broader understanding of the politics of standards and the ways in which standards shape local and global agri-food networks.

To my mom and dad, my husband, and my sister.

ACKNOWLEDGEMENTS

Countless people and organizations have contributed to my successful completion of this research project. Thanks to my mother and father, Marge and Bill Ransom, and my sister, Dr. Mary Medlin for all that they have given to me. My family believed in my ability to complete this process and they served as a constant source of emotional, spiritual, and financial support. Similarly, my husband Matt was a steadfast source of support and encouragement. Matt has been with me throughout this entire process. He read countless drafts of my grant proposals and my dissertation and Matt stood near during times when I shed tears of joy and sadness. In large part it was my family and Matt's willingness to pitch in when I needed them that allowed me to live in South Africa for the duration of my research.

My friends, both new and old, have no idea how much their friendship has assisted and enabled me to reach this point. Max and Amy Boswell, Joy Davis, Jill Lewis, Susan Milam, Susie Mayhorn and all of my friends from the WCU cross country team played an integral part in this process. Special thanks also go to graduate school friends including: Carmen Bain, Brad Carl, Mike Cichello, Heather Holtzclaw, Gerad Middendorf, Mike Skladany, Teri Swezey, Keiko Tanaka, Merideth Trahan, Michelle Worosz, Tomiko Yamaguchi. In addition, thanks to all my friends at Habitat for Humanity/Lansing and the friends that I made on the MI basketball courts.

Of course, none of this would have been possible without the immense assistance from my advisor and mentor, Dr. Lawrence Busch. His humor and his insight have assisted me in innumerable ways. Larry always supported my intellectual interests and he is truly an intellectual inspiration for me. I am also greatly indebted to my committee

members, Dr. Rita Gallin, Dr. Ruth Hamilton, and Dr. Toby Ten Eyck. Rita Gallin taught me the importance of WID/WAD/GAD and I only wish I could have someone like Rita to read and edit everything I write. Ruth Hamilton encouraged me to think critically about race and ethnicity around the globe. I am thankful I had the opportunity to learn from her. Toby Ten Eyck has set an amazing example of how to move beyond graduate school and become a successful scholar and mentor. In addition, thank you to Dr. James Bingen from the Department of Resource Development. I am indebted to Jim for his willingness to read and provide valuable comments on the earliest draft of my dissertation grant proposal and again at the conclusion of my dissertation. Finally, I appreciate the assistance of everyone in The Department of Sociology at Michigan State University.

I want to express tremendous appreciation to the South African Meat Industry Council (SAMIC) for their assistance. In particularly, special thanks go to Boet Venter who gave me the initial invitation back in 1998 to return to SAMIC and study the industry, Dr. Gerrit Bruwer who provided a tremendous support in helping me better understand the industry and standards relevant to the industry, and Heneriette Wagner who provided both professional and personal support while I was in South Africa. Special thanks also go to Louis Visagie at the Red Meat Abattoir Association (RMAA) and Aggrey Mahanjana at the National Emergent Red Meat Producers' Organisation (NERPO). Thanks to Mike Morris and the staff in the School of Development Studies (SODS) at the University of Natal, Durban. I would also like to say thanks to all those in South Africa who gave me their time and energy either by allowing me to interview them, or by assisting me in finding data or articles. I am especially indebted to the

families that opened their homes to me, the Knoesen's and the Hofmeyr's, and to Paul Felix for lending me his car, which I hope I did not damage too much!

Funding in support of this research was made possible by a Doctoral Dissertation Research Improvement Grant from the National Science Foundation, Societal Dimensions of Engineering, Science and Technology: Ethics and Values Studies, Research on Science and Technology under Grant Number SES-0080335. In addition, funding was provided by the College of Social Science at Michigan State University. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author and do not necessarily reflect the views of the National Science Foundation, Michigan State University, or any of the South African organizations that assisted me.

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CHAPTER 1

Introduction

Standards for agriculture, food, and other goods and services are increasingly important due to the overall increase in global agri-food trade. The importance of standards has been amplified by the advent of the World Trade Organization (W.T.O.) in 1996, which effectively increased the level of organizational authority in settling trade disputes between countries. Standards are viewed as one means to achieve a more predictable and efficient trade system. Standards make possible the location of production around the globe by ensuring compatible products and processes (Busch et al. 1998). Despite their growing importance, standards for agriculture and food (hygiene, food safety, and other product attributes, e.g., quality) have often been overlooked and appear as mere technical details. Therefore, standards are rarely examined as a site of contestation of social and political realities. By ignoring standards, the negotiations that surround their creation and implementation, and their outcomes, scholars have overlooked a fertile arena to understand important aspects of the global transformation of agricultural production, distribution and consumption. More broadly scholars who have ignored an analysis of standards have missed an opportunity to understand the impact of globalization on individual actors. Sociological studies have revealed that globalization is a fragmented, incomplete, and often contradictory process (Guillen 2001). In an effort to gain a more nuanced understanding of a progressively global agri-food network and the consequences for a diverse group of actors, this dissertation examines standards in the red meat industry in South Africa.

As a specific commodity or object is traded globally, the standards related to that commodity become more uniform, regardless of the culture or nation within which the object originates (Tanaka and Busch 2003). These progressively uniform standards originate from many sources; however, the Codex Alimentarius Committee (Codex) has played an increasingly important role in standard setting in recent years.[1] When Codex sets standards, these have a tendency to become *de facto* mandatory standards. This is because the W.T.O. refers to Codex standards when it settles trade disputes (FAO 2001). As a developing country with limited resources, South Africa standard setting organizations refer to the Codex as a guideline for setting national government standards.[2] By referring to the Codex South Africa's government simultaneously assures itself that national standards are in compliance with international standards and it reduces some of the costs associated with setting standards. Due to the increasing importance of standards and the increasing standardization of standards, it is critical for scholars to examine the fact that standards are not mere "technical details." Instead, standards infuse particular values into the globalized agri-food network and, therefore, need to be viewed as more than the creation of objective scientists. As South African markets move from protected to open markets within a global economy, South Africans must respond to new actors with differing standards. The juxtaposition of South African standards (which are quite diverse) and international market standards create a perfect arena to investigate the implications of conflicting values, the negotiations that occur, and the outcomes of

[1] Appendix A contains a more complete list of international bodies involved with standards for agriculture and food.

[2] All terms used to refer to distinctions between developed and developing societies are problematic due to linguistic associations that imply rank ordering, with "developed" countries viewed as ahead of or better than "developing" countries. Other problematic terms include First/Third World, North/South, and industrialized/industrializing. For the purposes of this discussion the terms developed and developing are used.

implementing specific standards. Through an analysis of the red meat commodity network in South Africa, this work seeks to address two fundamental questions. First, how do international standards impact a primarily domestic market? Second, how do standards, both international and domestic, interact with markets that are segmented by race, class and gender?

The Context

With an expanding global market agri-food products travel longer and longer distances from point of production to point of destination.[3] This changing landscape of production, trade, and consumption has a number of implications. First, products do not move without assistance. Therefore, companies, technologies, and standards are endlessly utilized to accommodate longer food networks. Second, local concerns become global concerns. For example, in 2000, I was aboard a commercial international airline en route to South Africa when an announcement was made that "due to the outbreak of FMD (foot and mouth disease) in parts of Europe and other health concerns related to red meat, we will only be serving poultry or fish on this flight." Diseases such as FMD and BSE (bovine spongiform encephalopathy, also known as "mad cow disease") become a concern for people (producers, processors, and consumers) throughout the world and not simply in the area where an initial occurrence is identified. Other increasingly global concerns related to the agri-food system include environmental consequences of

[3] While there is tremendous disagreement on when exactly globalization began (Held 1991; Guillen 2001), within agri-food studies the conclusion of World War II is generally seen as the beginning of a qualitatively different era of global agrifood networks (McMichael 1996). The difference between global agrifood trade of previous eras was the quantity, quality, and interdependence of commodity networks, with an increasing concentration of a limited number of corporations involved with agrifood production, processing, and distribution.

industrialized agriculture, corporate control over the food supply, and the simultaneous increase in the amount of food produced and the number of people suffering from inadequate diets.

An issue more closely aligned to the focus of this work is the increasing importance and relevance of standards in the agri-food system. This begs the questions: What is a good standard? Whose standards are the "best" standards? Why are some standards important, such as ensuring a food safety standard does not cause barriers to trade, but other standards are not considered legitimate, such as ensuring environmentally sustainable production?

These questions are addressed by utilizing two distinct, yet complementary areas of literature as theoretical lenses to assess the South Africa red meat industry. These two areas are: (1) political economy of agriculture and food and (2) social studies of science and technology (SSST), including what is called "liberationist" discussions of science and technology, a literature that has erratically been connected with SSST.[4] This work also incorporates the emergent literature on standards and standardization.

The standards literature originates from a range of disciplines and maintains little theoretical consistency. However, this literature is important for providing a basic understanding of standards and standardization. This diverse literature also provides justification of the importance of the study of standards. The political economy of agriculture literature assists this analysis in terms of recognizing and critically analyzing the structure of agriculture globally and the position of South African agriculture within this global context. However, focusing solely on a political economic perspective would

[4] For the purposes of brevity I am calling all third world, feminist and racial/ethnic SSST scholars "liberationist" SSST scholars. Rouse (1987) uses the term liberationist accounts of science to describe critiques of scientific practices and their political impact from the perspective of oppressed groups.

fail to uncover the technical aspects of standards. As such, the SSST literature enables one to recognize the human and the non-human actors participating in commodity networks. This further aids in deconstructing the multitude of relationships within an industry. Further, using liberationist SSST calls attention to the role of standards in translating and transforming power relationships within South African red meat networks. Together, the political economy of agriculture and the SSST literature allow for a better theoretical understanding of the impact of standards and standardization. Let us turn to a brief discussion of these three areas of literature, with more elaboration on how each contributes to a better understanding of standards in the global agri-food system in the chapters that follow.

Standards and Standardization

Standards are ubiquitous. They are all around us and shape our daily lives, yet the vast majority of standards exist without our giving much thought to them (Busch 2000; Bowker and Star 1999). Hence, unless something occurs which makes us aware of a standard (e.g., when a standard is not met and negative consequences ensue), standards generally exist without being noticed.

Standards can exist for a product (e.g., canned meat) and a process (e.g., slaughter specifications) (Busch 1997; U.S. House of Representatives 2000). In an era that is marked by increasing global trade, competition, and the restructuring of economies from planned to market driven, standards have gained in importance (Busch 1998; Roberts 2001). In a global market economy, Busch et al. (1998, 1) note that standards define what is to be traded (e.g., meat standards), establish agreed upon practices to structure

production processes (e.g., food safety regulations), "fix levels of consistent product quality (though not always the highest quality)," and, as mentioned previously "make possible the location of production around the globe by ensuring compatible products and processes" (e.g., cuts of meat and cold storage requirements).

There are two general categories of standards that can be applied to product, process, and service standards and are especially well suited to a discussion of standards in the red meat industry. First, there are standards for hygiene and food safety and second, there are standards related to other product attributes (Roberts 2001). Other product attributes include standards concerning meat tenderness, animal welfare, and all products that make specific claims, such as organic or hormone free meat. Of course, the differences between safety and product attributes are not always separate categories. For example, better animal handling at abattoirs has long been associated with contributing to more tender meat post-mortem (Belk et al. 2002).[5]

Brunsson and Jacobson (2000) provide a taxonomy for standards, by asserting that standards are one of three types of rules found in society.[6] The two other categories of rules are social norms and directives. Social norms are described as rarely appearing in written form, but yet are pervasive concepts that structure our actions within societies to which we belong. Directives can be described as what we generally associate as laws, in that directives are generally mandatory rules either within an organization or in society, and they are enforced by authority.

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[5] Originating from the French, abattoir means slaughterhouse. South Africans refer to slaughter facilities as abattoirs.

[6] The National Research Council (1995) report also uses this taxonomy without using the same language (for example see Chapter 1: Introduction).

Similar to directives, Brunsson and Jacobson (*Ibid*) propose that standards are also found in written form. They are explicit and they have an evident source, but generally standards adherence is voluntary rather than enforced by authority. In practice, these three categories often become blurred and change occurs overtime. For example, what was once a voluntary standard, might become a directive within a particular industry.

Brunsson and Jacobson leave their definition of standards deliberately vague, not only because standards and standardization tend to be variable in character, rather than constant, but also because they see their work as only a beginning to a topic that has thus far received limited social science attention. Similarly, other works that have dealt with the topic of standards have also been critiqued for failing to provide a clear definition of standards (see for example, Watson's (1998) critique of Krislov (1997)). In part, this is attributable to the fact that a study of standards and standardization can reveal many things to many different audiences. A short list of possible sociological topics include: an examination of standard setting and enforcing groups as a means to aid our understanding of organizations and bureaucracies; how standards become reified into facts about the natural world; and how standards become symbols by which groups' identities are formed (Walzer 1983; Watson 1998). Cited in a report by the United States' National Research Council (1995, 9) a broad definition of a standard is "a set of characteristics or quantities that describes features of a product, process, service, interface, or material."

This work focuses solely on red meat standards, and related agriculture and food standards. Some of the standards are voluntary, while others are what Brunsson and

Jacobson identify as directives, or laws. Within red meat standards, the focus is on food safety (e.g., hygienic meat processing) and product attribute (e.g., electrical stimulation for tender meat) standards. The discussion is not directly focused on environmental and labor standards. However, mention of these standards enters into the discussion indirectly.[7]

What Do Standards Do?

As economists note, standards help reduce transaction costs, increase the predictability of a product, and in general, simplify what could be a very tedious and complicated process. With the increasing importance of standards, however, a shift has occurred from the use of standards as technical tools for market homogeneity to the use of standards as strategic tools for accessing markets, coordinating systems, enhancing quality and safety assurance, product branding, and creating niche markets (Giovannucci and Reardon 2000; Reardon et al. 2001). As a part of market strategy standards may benefit the industry as a whole and/or may be used as a means to distribute benefits unevenly in the industry.

As the agri-food system becomes more globalized, there is a tendency for standardization of standards to take place. As part of modern capitalist societies, more things tend to become commodities at some point in their "lives" and standards for a given thing tend to become more uniform across nations and cultures (Tanaka and Busch

[7] Environmental and labor standards were not the primary focus of this research. Therefore, they are largely absent from the research data. Researching the topic of labor standards would have required interviewing a significantly different group of people. Minimal attention has been given to environmental standards within South Africa's red meat industry.

2003 citing Appadurai 1986). Hence, the global agri-food system has tendencies towards standardization and homogenization.[8]

Standards are more than simply technical details or strategic tools used as part of market strategy. In the past ten years scholars have focused on the ways in which standards and standardization have ethical and moral implications for the way the world is because standards and standardization construct the world in certain ways and not others (Busch 2000; Grindley 1995; Bowker and Star 1999; Brunsson and Jacobsson 2000). Linked with an understanding of the ethical and moral implications of standards, is the idea that standards are one measure by which products, processes, and people are judged. A standard for a "good" steak also implies what a "good" farmer is and what is a "good" slaughtering process.

Because standards shape the way the world is and actors throughout the world shape standards, the determination of standards is often the source of heated debate. Summarizing from the work of Busch et al. (1998) the reason for the debates are linked to issues of negotiations, access and outcomes. Not everyone is included in the ***negotiations*** that lead to the creation, modification, implementation or maintenance of standards. Second, while standards tend towards making markets more transparent, they may also allow or deny ***access*** to particular products or labor markets. In addition, the type of criteria used to determine access is often based on measures that correlate with nationality, race, ethnicity or gender. (For example, only persons selected as representatives of their country or serving as representatives of FAO/WHO recognized international NGOs (non-governmental organizations) can attend Codex meetings).

[8] A good example of standardization and homogenization of food products on a global scale is the McDonald's Corporation, which is discussed in Schlosser's (2001) *Fast Food Nation*.

Likewise, standards may be used by nation states as non-tariff trade barriers. Finally, standards may have positive and/or negative ***outcomes*** for different interests. Thus, although newly introduced standards are often extremely political and socially contested, the use of technical details (the defined technical standard) tends to brush aside the political and social relevance. This is especially true over time as standards become "naturalized" so they appear as only technical details (Bowker and Star 1999).[9]

Recall that one question this work seeks to address is how standards interact with markets that are segmented by race, class, and gender. Due to South Africa's legacy of apartheid, race and ethnicity are the obvious categories of structured inequalities. However, this work reveals how gender and class are very much present in the current construction and maintenance of inequality. Standards as a point of study offer the possibility of helping to understand the ways in which race, class, and gender (among other categories) are materially maintained, but also can be materially transformed. Thus, this work explores how standards can contribute to changing and/or maintaining (in)equitable relationships between participants in the South African red meat industry.

While this research focuses primarily on structures of inequalities internal to South Africa, this research also reveals how the lines between national and international inequalities are blurred. Recall that the second question this work seeks to address is how international standards impact a primarily domestic market. Any effort to reduce inequalities within an industry in South Africa will require, minimally, an awareness of the interplay or constraints imposed by other nations and the global marketplace. Wilson

[9] The use of the term "naturalized" is intentional. Bowker and Star (1999,196) explain that it is only through our institutions and structures that we can describe and manipulate nature. Therefore contrary to the image of something that is pure and unsullied by humans, much of what appears "natural" has actually been thoroughly integrated into our social structures and institutions so that we can make use of the object or thing.

(2000, 81) writes, "Globalisation does seem to be associated with the building of global inequality, with the whole process of globalisation placing enormous constraints on what the South African government can do in terms of policy." As South Africa moves further along the path of globalization, which includes the trading of agricultural commodities like red meat, issues of global inequalities collide with global technoscience. Haraway (1997, 57) asserts that a person does not have to subscribe to conspiracy theories in order to recognize and understand that "the technoscientific agenda for everybody ... set by the economically dominant powers, especially the United States, is inescapable." She continues (*Ibid*):

> The control of genes means access both to naturally occurring diversity and to the material, social, and semiotic technology to recraft its riches to produce beings new to Earth. Which new beings, for whom, and out of whom seem to me to be pressing questions lying at the heart of democracy, social justice, economy, agriculture, medicine, labor, and environment.

Therefore, as actors in South Africa's red meat industry pursue global trade they are shaped by global forces and by the science and technology that they use in industrial meat production, much of which has been developed and shaped by more economically dominant actors involved in the global trade of commodities.

Wilson raises a point that seems to summarize not only the challenge to globalization, but the challenge to those interested in pursuing commodity networks, including the trading of red meat, nationally and internationally. He states, "the challenge is how to build a new solidarity not only within South Africa, but also between nations. The statistics currently emerging about global inequality are horrendous. The wealthiest 20 percent of the world's population as a ratio to the poorest 20 percent was

about 3:1 in 1817 . . . and by 1998 it was 85:1. This is the state of the global economy" (Wilson 2000, 183). Thus, a study of standards and standardization is important because it can shed light on explaining and understanding how seemingly mundane standards differentially shape diverse interests and actors.

In order to gain an understanding of the standards and the effects of standards on actors in the red meat commodity chain, a review of two separate bodies of literature is conducted. The first area of literature, the political economy of agri-food production, looks at the global transformation of agriculture and food production. The second area of literature, Social Studies of Science and Technology, investigates how science and technology are constructed and utilized within agri-food production.

Political Economy of Agriculture

The globalized agri-food system serves as a backdrop to the focus of this study. Thus, it is important to say more about the agri-food system in order to establish the larger context within which the red meat industry in South Africa is operating. The agri-food system is defined as "the production, transportation, and marketing of the inputs to farming, farming (the physical process of turning inputs like seed, feed, water, fertilizer, and pesticides into primary products), and the transportation, processing, and marketing of farm outputs" (adapted from Lewontin in Magdoff et al. 2000, 94-95). Despite an increasingly global food system (emphasis on the singular), conceptualizing global food production and trade in terms of agri-food networks (emphasis on the plural) improves our understanding of global processes. Indeed, a strength and a weakness of the political economy of agriculture literature is the emphasis on a single agri-food system.

The strength of the political economic approach within agricultural studies is that it reveals the progression of change in industrial agriculture globally as following the logic of capital. Hence, the political economy of agriculture focuses on how industrial agriculture endlessly changes as a means to increase productivity and profit and to minimize costs. Characteristics of industrial agriculture in developing countries include a decline in subsistence farming and the increasing production of luxury crops for export to rich countries (Magdoff et. al 2000). Similarly, in developing and developed countries there continues to be a movement towards concentration within and between industries, centralization of capital, and a dramatic decline in the number of people farming full-time (*Ibid*). In fact, as capital flows more freely, animal production is among the first areas of agriculture to see dramatic increases in concentration, with animals being reared in progressively larger units (Friedman 1999).[10]

Following the logic of capital, the political economic approach also reveals the emergence of a new international division of labor (Bonanno 1994). The elements of the new international division of labor include (1) a decline (but not a disappearance) in the importance of the nation-state, (2) "an international hierarchy of winners and losers that exists in spaces and population groups throughout the world, not necessarily within specific nations," and (3) globalization of the production processes and markets (Bonanno 1994, 2). Given the points listed above, and recognizing that industrial agriculture is endlessly changing to further maximize capital accumulation, we can utilize

[10] Some of the largest beef feedlots in the world now have up to 100,000 head of cattle. In South Africa, the largest beef feedlots have a capacity of 70,000 to 80,000 head of cattle. In the U.S. twenty feedlots feed about half of the total cattle (Heffernan 1999). In South Africa there are 53 registered feedlots, and they provide approximately seventy percent of all commercially slaughtered beef annually (SAMIC 2003). Poultry and pork follow similar concentration trends.

a political economic framework to study the role of G.A.T.T. (General Agreement on Tariffs and Trade) and the W.T.O.

A brief history of the development of the W.T.O. within a political economic framework includes the recognition of the role of the key nation-states and big corporations. From the 1940s until the 1990s the U.S. followed by the E.C. (European Community) promoted national agricultural production through substantial subsidies to farmers and overproduction was accommodated through food aid and selling commodities at artificially low prices in international markets (Freidmann 1999; McMichael 2000). Until 1994 in the G.A.T.T. Uruguay Round the U.S. had insisted that agriculture be excluded from trade liberalization rules. However, European export subsidies of agricultural products led to a decline of U.S. dominance of exports as Europe increasingly captured international markets (under the European Common Agricultural Policy (CAP)). Thus, as of the 1994 G.A.T.T. Uruguay Round, the U.S. encouraged agriculture to be included in liberalized trade discussions. McMichael (2000, 134) notes:

> These trade challenges have not so much rewarded the United States (and other food exporting nations), as they have strengthened the grip of the food companies, which benefit from the free trade movement – for example, 50 percent of U.S. grain exports in 1994 were shared by two companies: Cargill and Continental.

The conclusion of the Uruguay Round established the World Trade Organization. Officially, the W.T.O. is the only international organization that engages with rules of trade between nations. The goal of the W.T.O. is to facilitate trade for producers of goods and services, importers, and exporters (W.T.O. 2003). However, within the political economic framework, some researchers see the W.T.O. as institutionalizing freedom of trade, enterprise and property rights on a world scale (McMichael 2000, 138).

Therefore, based on the political economic approach, one is drawn to refer to the agri-food system as a singular entity. However, only focusing on a singular *"system"* obscures the complexity and diversity found in different countries and regions of the world. Indeed, as Bonnano (1994) notes, the hegemonic aspects of nation-states have declined, but this decline should not be overstated. In less globally dominant countries, especially economically poor countries, many farmers are dependent on governments for the provision of resources to farm and to provide adequate internal infrastructure. In developed countries, like the U.S., many farmers still rely heavily on government subsidies (Becker 2002a). In addition, unlike grains or fruits, red meat production continues to be demarcated by national or regional ownership, with minimal ownership by multinational corporations.[11] Finally, there are technologies that travel the globe, and while many agri-food technologies assist in maintaining the status quo, new technologies offer new possibilities of altering patterns of power within global trade. Hence, recognizing agri-food networks requires going beyond a political economic construction of corporate actors and dominant nation states as entities orchestrating global trade. Rather, agri-food networks open up spaces for exploring the role of human and non-human actors that may or may not be connected to corporations and nation-states. Recognizing the role of people and things within global food networks brings us to the SSST literature, and more specifically to actor network theory (ANT).

[11] This occurs despite increased concentration of production within countries. In part, the slow movement of multinational corporations into the red meat industry has to do with the costs (uncertainties) of the product itself – disease, spoilage, and general food safety concerns. Until the potential costs associated with red meat are reduced it is not likely that MNCs will pursue direct ownership.

Social Studies of Science and Technology

A series of works published in the 1960s and 70s (Kuhn 1962; Merton 1973; Feyerabend 1978) attempted to reveal the ways in which science and society were linked, thus exposing science as a social system (Edge 1995). Drawing from these earlier works, scholars working within the SSK (Sociology of Scientific Knowledge) tradition began to critique scientific thought. Bloor's (1976) "principle of symmetry" was one of the invaluable critiques of scientific thought. Bloor argued that as a methodological principle, true and false knowledge claims must be treated equally. Bloor correctly noted that the successes of science tended to receive all the attention, while the failures were swept under the proverbial rug. By observing both the successes and the failures in science, Bloor argued that we could gain a more comprehensive understanding of science as a part of society. However, a weakness of SSK is that it did not effectively capture what actually occurred in the laboratory or, more generally, in scientific practice (Pickering 1992).

As such, science studies turned to focus on gaining access to the technical content of science through channels other than those of accepted scientific fact. Laboratory studies such as Latour and Woolgar's *Laboratory Life* (1979) and Knorr-Cetina's *Manufacturing Knowledge* (1981), introduced the concept of studying science in practice. The authors' promoted a methodological approach that focused on the study of scientific controversies and unfinished knowledge (Knorr-Cetina 1995). Scholars working in this tradition recognized that once knowledge has become final, it is much more difficult, if not impossible, to reveal the previous disputes and the possibilities that existed for alternative outcomes (Latour 1987; Knorr Cetina 1995; Star 1991). For one group this

included the notion of following the actors during knowledge construction or what came to be known as ANT -- Actor Network Theory (Callon and Law 1996; Latour 1997).[12]

ANT furthered Bloor's concept of symmetry by arguing that Bloor's own discussion was asymmetric because Bloor assumed Society was supposed to explain Nature (Callon 1986; Latour 1987). Therefore, the principle of generalized symmetry was established and this symmetry calls for the treatment of subject/society in the same way as object/nature (Latour 1987, 1992).

Within agri-food studies, a few scholars have attempted to utilize political economic agri-food studies in combination with ANT (Busch and Juska 1997; Marsden 1997; Murdock et al. 2000; Tanaka and Busch 2003). Busch and Juska (1997, 690) maintain that ANT is situated firmly within the political economic framework, because ANT also sees the "extension of production networks proceeding simultaneously with the process of production and distribution of wealth, status and power among actors engaged in the commodity production." While the ANT perspective incorporates traditional political economic approaches[13] this perspective also expands upon these approaches in two significant ways.

First, ANT attempts to abandon dualistic ways of thinking, particularly the distinction between macro and micro levels of analysis and action. The extreme of the macro/micro divide in political economic approaches can be found in Wallerstein's world systems theory. Despite covering a wide range of concerns, including international

[12] Actor Network Theory/Approach/Method – Actor Network has been identified as all three of these things, a theory, an approach, and a method. The methodology section addresses some of the controversies embedded in these terms.

[13] Traditional approaches refer here to classical political economy and newer political economic perspectives that are situated within a Marxist framework (see Busch and Juska 1997 for an elaboration on both).

development and racial formation on a global scale, Wallerstein's discussions make it seem that individual actors (the micro level) are not present (2000). Though quite different in their arguments, two seminal works in agri-food studies that have utilized the macro political economic perspective are Freidmann and McMichael (1989) and Goodman and Watts (1994). Both of these works allow macro theorizing and empirical research on agri-food systems. The former draws on Wallerstein's world systems approach with an emphasis on nation-states' policies as linked to international development and the latter with an emphasis on regulationist theory and how state practices are shaped by crises in the food system (Buttel 2001). While these works altered the study of agriculture by engaging in critical accounts of agricultural development, both works emphasize the structured components of global agriculture to the detriment of individual actors. However, through combining the theoretical input of Goodman and Watts with ANT, scholars such as Marsden et al. (1995, 2002) and Busch and Juska (1997) began to shift agri-food studies away from the macro/micro division.

Through grounding observations and discussions in the day-to-day interactions and relationships that construct an industry, researchers effectively utilize ANT within commodity studies. Two concepts that emerge from utilizing network analysis are relational materiality and performativity. Relational materiality is the notion that all entities "are produced in relation" to one another and this is applied "to all materials – and not simply to those that are linguistic" (Law 1999, 4). Therefore, if you follow networks and recognize the relational materiality of all actors, then you also recognize that all "entities are performed in, by and through those relations" (Law 1999, 4). The consequence of recognizing the relational and performed ways that actors exist means

that, at least in theory, everything is uncertain and reversible (*Ibid*). Thus, using ANT leaves many more opportunities for actors to exhibit agency within agri-food studies than do the traditional political economic approaches. In addition, ANT lends an explanation to the way categories are endlessly remade, as opposed to assuming fixed categories. For example, categories that are endlessly remade in the South African red meat commodity chain,[14] include who is considered a producer or a consumer.

This brings us to the second way that ANT furthers political economic approaches. ANT requires that nature and other non-human actors be taken into account in structuring actions by not simply viewing them as objects to be used by humans. Thus, we are better able to understand how a commodity network is produced and extended and why some commodity networks become stable, while others remain unstable, or never develop (Tanaka and Busch 2003). All actors (human and non-human) in a commodity chain operate in relation to one another and the very meaning of the commodity is constructed in, by, and through these relations. For example, a new company in South Africa is attempting to market "all-natural" beef (the animals are raised in grass fields and no chemicals or antibiotics are used). However, in order to successfully extend this network, there must be: farmers willing to raise the animals in this manner; the identification of appropriate breeds that thrive in "natural" conditions; facilities with proper equipment to handle the slaughter, packaging/shipping equipment, and storage space[15]; stores willing to sell the all-natural beef products; and consumers educated to the

[14] The terms "chain" and "network" in reference to commodity production is used interchangeably throughout this work.

[15] The "all-natural" aging process requires more storage space because the process is slower. Natural aging requires that the processor have carcasses hanging for a longer period of time (up to twenty-one days), while industrial processors often hang carcasses for a very short period of time (often only one day) before they are shipped out of the abattoir.

idea that they want this type of meat. The fact that any one of these actors may not behave as expected, including breeds of cattle not suitable for this type of commodity production, reveals the fragile and dynamic aspect of a commodity network.

ANT has contributed to a better understanding of science as a social system, and therefore, as we look at scientific practices in agriculture, it has contributed to a better understanding of agri-food studies. However, as with most perspectives, ANT is not without its critics, especially when standards are focused on in agri-food networks outside of the United States and Western Europe. Bowker and Star (1999, 48) note that ANT "drew our attention to the importance of the development of standards ... but did not look at these in detail." In addition, they continue on to note that by the very nature of the method (i.e., following the actors) we shared in the actor's blindness. Bowker and Star write (1999, 48), "the actors being followed did not themselves *see* what was excluded: they constructed a world in which that exclusion could occur." The fact that science studies have only focused on science and technology production in specific parts of the world, namely globally dominant countries like the U.S. and the E.U., raises the possibility that these works may fail to account for differences between stronger and weaker nations. Thus, scholars who focus attention on these differences are a valuable addition to this study.

Liberationist SSST

While traditional SSST scholars diligently chiseled away the wall that separates science from politics, these scholars did not see the context within which they chiseled. This point has been raised by several scholars including Bowker and Star (1999), Harding

(1991), Haraway (1997), and Star (1991). They suggest that SSST scholars are not following just any actors in the world. They are overwhelmingly following white, western, capitalist and male actors involved in the production of science. Ironically, through their emphasis on performativity, Latour and Callon opened up the opportunity to explore how science contributes to the construction of social categories, such as race and gender, but they failed to take their analysis in this direction. Haraway (1997, 35) continues:

> Either critical scholars in antiracist, feminist cultural studies of science and technology have not been clear enough about racial formation, gender-in-the-making, the forging of class, and the discursive production of sexuality *through the constitutive practices of technoscience production themselves*, or the science studies scholars aren't reading or listening – or both. (emphasis in the original)

Through the use of relationality and performativity in science studies, Latour (1987, 174) offered the concept of technoscience to describe the messiness that goes into the actual production of the finished products that we call "science and technology." Latour sought to expand SSST beyond a simplistic understanding of the scientist working diligently in the lab, by including all the human and non-human actors that contribute to the production of science and technology. Latour's idea of technoscience insisted upon increasing reflexivity among actors' workings on science and technology. Rather than envisioning a sole person achieving a scientific discovery, ANT emphasized how many actors (human and non-human) collaborate in the production of science and technology.[16] However, while the concept of technoscience provided an opportunity for further

[16] Indeed, Latour discovered that what he viewed as "adding realism" to science was actually seen by scientists as a threat to science because they viewed it as decreasing a scientist's ability to make truth claims and achieve scientific certainty (Latour 1999).

reflexivity and identification of power within the production of technoscience, this was not an avenue willingly pursued by many ANT scholars (Law 1991).

Building upon the idea of relationality, Haraway expanded upon Latour's notion of technoscience by modifying the concept and defining it as sociotechnical production. Haraway (1997, 7) defines sociotechnical production as "the knowledge-power processes that inscribe and materialize the world in some forms rather than others." Through the use of the term sociotechnical production Haraway calls attention to which actors are involved in technoscience production and for what purposes.

Haraway's works can be categorized as within liberationist SSST and her work has remained integral to the broader SSST literature, unlike many other liberationist SSST scholars. Generally, liberationist SSST scholars have as a general purpose for their investigations "questions about for whom and for what the semiotic-material apparatuses of scientific knowledge production gets built and sustained" (Haraway 1997, 269). Overall, Haraway has pushed the SSST field the furthest by attempting to interrogate and theorize how science participates in the construction of oppression in the world today. Specifically, she has focused much of her attention on race, colonialism/imperialism, gender, and to a lesser degree, class. Because her work is one of the few SSST works to have focused on all these areas her work is most relevant to this research.

When discussing standards in the agri-food system, the importance of being able to investigate science as a social system, and more importantly investigate for what purposes science and technology are created, is invaluable. This is especially relevant when the focus is on agri-food standards within the context of a country such as South

Africa that is less powerful socially, politically, and economically on a global scale than other nations.

Overview of Chapters

The following chapter provides an overview of the South African red meat industry, including the history of South African agriculture and current issues within South Africa's agri-food networks. A discussion of the methodology used in the collection of data for this study is presented in Chapter Three. This includes a justification for why South Africa was chosen for this study and finally a discussion of the analysis of the data. Chapters Four and Five present the findings from this research. Specifically, Chapter Four analyzes the standards utilized in South Africa's commercial industry to achieve food safety (hygiene) and quality attributes (tender meat). Chapter Five focuses on the unexpected emphasis that interviewees involved with this study gave to South African consumers. Thus, Chapter Five seeks to explore and explain the ways that standards and standardization intersect with both the industry's perspective of consumers and consumer interests and concerns. The final chapter discusses food systems of the future, including a discussion of the ways in which political economic agri-food studies and SSST (including liberationist accounts) scholars overlap in their critiques, and ultimately in their visions for the future. Therefore, suggestions for change or future directions proposed by each group have the potential to contribute to a broader conversation on practices in agri-food networks and science that can contribute to a more just and equitable global food system.

This dissertation should contribute to an understanding of standards and the impact that standards have at multiple levels (e.g., businesses, nation states). In addition, this study further demonstrates to policy makers, scientists, and others who participate in the construction and implementation of standards that despite the seemingly small changes created by standards, specific conditions and cultures must be accounted for when implementing (what was envisioned as antiseptic) standards. Via an exploration and examination of the complexity created by standards production and implementation we can begin to address the questions: How do international standards impact a primarily domestic market? How do standards interact with markets that are segmented by race, class, and gender?

CHAPTER 2

Global Trade and South Africa's Red Meat Industry

During the apartheid era[17], all of South African agriculture was government directed and marketing boards controlled up to 80 percent of all commercial agriculture.[18] The Meat Board had statutory authority to oversee the registration of key participants in the industry, keep records on the industry, and collect a statutory levy. For example, in 1996 the Board collected more than R57 million in the form of statutory levies (NAMC 2001). In fact, until 1992, the Meat Board acted as the sole importer of red meat. However, in order to comply with the requirements of the G.A.T.T., import control as executed by the Meat Board was abolished (NAMC 2001). Prior to the disbanding of all marketing boards, at least one agricultural economist viewed the Meat Board as in serious need of major revisions in policy to correct for economic inefficiencies (Lubbe 1992). This economic inefficiency was, at least in part, related to the inefficiencies of maintaining an apartheid society (*Ibid*).

By 1983 at least 2.5 million rural people had been forcibly removed from their land and driven into the "homelands." From 1955 to 1969 population densities in traditionally black rural areas rose from 60 persons per square mile to 110 persons per square mile (Winberg 1996). Besides promoting overcrowding, and therefore, degradation of the available natural resources in the homelands, the government also

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[17] While separation and inequality existed in South Africa from the very early days of Dutch settlement, the beginning of apartheid officially began in 1948 when the Nationalist party was elected to government. Apartheid was made up of a series of laws that required people be strictly categorized by racial group. These classifications were used to determine every aspect of a person's life, including where a person could live and work (Bowker and Star 2000; Wylie 2001).

[18] Commercial is used here to distinguish from the informal sector of South Africa, which for historical reasons, is very large. Approximately 25 percent of all livestock in South Africa are found in the informal sector.

intervened in ways that undermined black smallholder agricultural production. These interventions included taxes which were imposed that forced blacks to earn wages in "white areas" (Lipton 1993). The government, in conjunction with the commercial agricultural sector, effectively created a two-tier agricultural system, establishing white farmers as commercial producers and restricting most blacks and "coloureds" to subsistence farming.[19] Today, South Africa is attempting to integrate its dual agricultural system into one and at the same time, to improve land distribution, agricultural productivity, and agricultural exports.

In order to understand the complex changes and challenges facing South African agriculture, and more specifically the red meat industry, this chapter begins with an overview of the global red meat industry and an analysis of the international institutional arrangements involved with standards setting. This is followed by a discussion of current issues in the South African red meat industry with an explication of the importance of standards in the industry. Finally, institutional and structural changes occurring within the industry are discussed.

Global Perspective

Globally, meat production and consumption continue to grow although at disparate rates depending upon the region. Within developed countries production is likely to continue to increase. However, the rate of growth for developed countries will be much slower than in the past and will be slower in comparison to growth rates in developing countries (Haen, et al. 1998). Presently, approximately thirty-seven percent

[19] The racial classification system under apartheid had four basic groups: Europeans, Asiatics, coloureds or persons of mixed race, and Bantus, also called natives (Bowker and Star 2000).

of the world's meat supply comes from industrial livestock production. However, industrial production is growing twice as fast as production in mixed crop-livestock farming systems and six times as fast as production in grazing systems (Haan et al. 1997; Fritschel and Mohan 1999).[20] Due to structural changes in global agriculture the livestock sector is likely to continue to change from a multifunctional to an industrial commodity sector (Haen et al. 1998).[21] Factors such as economies of scale, increasing labor costs, and declining capital costs are cited as promoting further industrialization (*Ibid*). Livestock industrialization encourages concentration of production units, and increasing vertical coordination between feed and meat producers and processors. Within the red meat industry, the hog industry has seen the highest amount of concentration and vertical integration, although the beef and sheep industries are also experiencing these changes (FAO 1998). For example, in the U.S. the four largest packers of beef have accounted for approximately 82 percent of steer and heifer slaughter since 1994 (USDA 1996). In South Africa, beef feedlots now provide approximately 70 percent of all beef sold commercially (SAMIC 2000).

Issues that are exacerbated by increasing industrialization and concentration of livestock production include environmental concerns (e.g., deforestation, drinking water and air pollution), impact on smallholders (e.g., market accessibility, income and asset generation for the poor), animal and public health issues (e.g., transfer of disease from

[20] Mixed crop-livestock farming occurs in many forms, but it is historically associated with more traditional and smallholder farming. Mixed crop-livestock farming usually includes a variety of crops that are grown and animals that are fed on crop residue, and in turn, animal manure and animal power is used for crop production. Recently, mixed crop-livestock farming has received renewed attention for the sustainable qualities of this type of farming system (Schiere and Kater 2001).

[21] Commodity production generally involves production for the market (as opposed to use for the family) with minimal mixed crop-livestock within the farm system.

animal to animal and animals to humans), and, in general, increased vulnerability of the industry to disasters (Delgado et al. 1999; Fritschel and Mohan 1999; Haan et al. 2001).

Growth in consumption of red meat products has generally remained flat in developed countries, while developing countries have experienced an aggregate increase, with variance by regions (see Table 2.1 below). For all developing countries, per capita consumption of beef, mutton, goat, pork, poultry, eggs and milk rose by an average of about 50 percent per person between 1973 and 1996 (Fritschel and Mohan 1999).

Table 2.1. Per capita consumption of meat products (kg)**

	Meat and products		
	1969/71*	1992/94*	2010
Developed countries	63	76	97
Developing countries	11	20	25
Africa (Sub-Saharan)	11	10	10
Near East/North Africa	13	19	23
East Asia	9	28	49
South Asia	4	5	6
Latin America/Caribbean	33	45	49
World	26	33	27

* Food consumption data from FAOSTAT
** Includes poultry (primarily responsible for growth in consumption within developed countries)
Source: FAO

Adapted from [Haen, 1998 #131]

In developing countries, population growth, urbanization and income growth are identified as key factors that have contributed to the major increase in demand for food of animal origin (Delgado et al. 1999). Delgado et al. (1999) refer to the massive increase in demand for food from animal origin as a "Livestock Revolution." Despite this increase people in developing countries currently receive only 11 percent of their calories and 26 percent of their protein from animal products as compared to developed countries where people receive 27 and 56 percent, respectively (Fritschel and Mohan 1999). As illustrated in Table 2.1, Sub-Saharan Africa is the only region that is not expected to see

an increase in per capita consumption. The constant rate of consumption is primarily attributable to low disposable income. The growth of industrial livestock production and increasing rates of consumption globally both reflect a broader trend in global agri-food trade. As commodities have become increasingly global there have also been institutional changes to accommodate (and some would argue accelerate) global trade. One of the most significant institutional changes that has occurred within the past decade is the creation of the World Trade Organization (W.T.O.).

International Institutional Arrangements[22]

As of January 1995 the W.T.O. was formally established after the conclusion of the Uruguay Round Multilateral Trade Negotiations. The W.T.O. was created as a permanent institution administering several international trade agreements and dealing with cases of international trade disputes (Spriggs and Isaac 2001). The creation of the W.T.O. effectively gave "more teeth" to trade dispute settlement procedures (Victor 2000). Prior to the W.T.O., the General Agreement on Tariffs and Trade (G.A.T.T.) was a multilateral agreement among countries providing a framework for the conduct of international trade, but compliance with G.A.T.T. was essentially voluntary (Das 1998; Spriggs and Isaac 2001).

Figure 2.1. International trade and the W.T.O.

The basic principle of international trade is that goods, when exported from a country, should generally have totally free entry into the importing country.

- Customs duty (tariff) can, however, be imposed at the border.
- W.T.O. provides a framework for negotiations on the levels of trade
- It also permits countries to apply, under certain situations, some non-tariff measures for directly restraining import
- W.T.O. provides for protection against unfair trade and disguised obstructions to trade

[22] Term used by Spriggs and Isaac (2001).

Under the W.T.O. there are two agreements that are most relevant to agriculture and food products. These are the Technical Barriers to Trade (TBT) and the Sanitary and Phytosanitary (SPS) Agreements. The SPS agreement focuses explicitly on food safety issues, while the TBT agreement is broader in scope, pertaining to any internationally traded product. Codex Alimentarius, a joint agency of the United Nations' WHO (World Health Organization) and FAO (Food and Agriculture Organization), serves as an advisor to the W.T.O. Codex was established in 1962 with a mandate to develop international standards, guidelines and codes of practice to protect the health of consumers and ensure fair trade practices.[23] In recent years their focus has extended towards issues of food quality, which is a natural extension from their focus on issues of food safety and consumer protection. Codex lacks a formal mechanism to enforce its standards. Conversely, the W.T.O. conducts dispute settlements between countries and thereby becomes a de facto enforcer of international standards. Thus, Codex promulgates standards, and the W.T.O.'s SPS and TBT Agreements promote harmonization of standards while simultaneously discouraging the use of standards as an unwarranted barrier to trade (Spriggs and Isaac 2001). Therefore, following the creation of the W.T.O. and the enhanced role of Codex decisions, international agri-food standards have become increasingly important.

Developing Countries and Critiques of International Institutional Arrangements

Critiques have been leveled against the international institutional arrangements for global agri-food trade with respect to their impact on developing countries. The

[23] Note that these two aims within the Codex charter can have contradictory objectives, with issues of economics (trade) and science (safety) sometimes in conflict with one another.

critiques include: the principal agent problem, implementation, and representation. The principal agent problem relates to the larger issue that significant resources are required to bring a case to the W.T.O. for dispute settlement. Generally, the beneficiaries of reduced protectionist trade measures are private firms, employees, dependents, and stockholders, but the cost of mobilizing and prosecuting a case is typically borne by governments (Victor 2000). There are many implications of the principal agent problem, but most salient for this study is the issue that governments of developing countries are often overburdened, including general understaffing and fiscal shortfalls, and therefore less likely to bring forward a case to the W.T.O. For developing countries this leads to a dispute settlement system that is more likely to only handle 'winner cases', in which the challenging country is likely to prevail, or symbolic cases, in which the country is politically unable to avoid dispute (Victor 2000).

The second critique leveled against the current institutional arrangements involves the issue of implementation and is defined in two ways. First, many developing countries complain that liberalization by developed countries in agriculture has not yet occurred (Finger and Schuler 2001). This has been the experience of South Africans, especially in their dealings with the E.U. (Graumans 1997). Second, developing countries are disproportionately burdened in the implementation of new W.T.O. obligations. Initially, the developed world promised assistance with implementation in developing countries but thus far it has not followed through on these promises (Finger and Schuler 2001).

The third critique of current institutional arrangements, unequal representation during negotiations, is actually a broad critique with two auxiliary critiques. Standard setting bodies have the potential to be dynamic arenas of negotiation among a myriad of

actors (e.g., representatives of industrialized and less industrialized nations, non-governmental organizations, industry). However, Codex and the W.T.O. tend to be dominated by U.S. and E.U. participants, primarily from large international companies (Lang 1999).[24] Thus, the E.U. and the U.S. tend to be the standards makers, while developing countries are the standards takers.

Codex argues that all countries should be present at Codex meetings so standards will not be created that harm any one country. However, most standards are constructed and debated within committees and once finalized, the standard is brought to the entire commission to be voted on by member countries. For many of the poorer countries, sending a team of country experts to the Codex meetings and to committees is prohibitively expensive. Therefore, there are likely to be fewer individuals representing poorer countries' interests at the committee level. In an effort to offset the lack of developing countries participation, FAO and WHO have started a $40 million Trust Fund for poor countries to enhance participation in Codex (FAO 2003). Beyond poor country representation there is the added issue that because standards are viewed by many as merely technical details, only those directly concerned with standards (e.g., transnational agribusiness corporations) lobby government representatives to make sure their interests are represented. Thus, while Codex is structured so that one country equals one vote, there is a powerful presence of observers representing transnational corporations (TNCs) at the meetings. These corporate observers come equipped with resources (scientists, displays, technologies) that lobby for countries' supporting votes.[25] Therefore, even if a

[24] Companies are not official participants at the W.T.O. and Codex; rather officials from companies engage in lobbying practices.

[25] As of 1996 approximately one-half of the world's total economic activity was produced by just 500 transnational corporations (TNCs). Two-thirds of these 500 TNCs have their base in Japan and the United

country is able to send representatives to both the committee level and the commission meetings, a developing country's representatives may be significantly less prepared and less informed on all of the relevant issues.

Within the debate focusing on representation are two debates that relate directly to food and agriculture. The first debate is structured around what is considered sound science. The second debate concerns the multifunctional purposes of agriculture and food. The debates over sound science involve a general disagreement, especially between the E.U. and the U.S., over the role of the precautionary principle in sound science. Within public policy the precautionary principle is a general decision making rule to be used in situations of potentially serious or irreversible threats to health or the environment. Thus, the precautionary principle is the idea that there is a need to act to reduce potential hazards before there is strong proof of harm (European Environment Agency 2002). As explained in a submission to the U.S. Advisory Committee on International Economic Policy in 2000:

> The precautionary principle states that if there are reasonable scientific grounds for believing that a new process or product may not be safe, it should not be introduced until we have convincing evidence that the risks are small and are outweighed by the benefits . . . . The principle does not, as some critics claim, require industry to provide absolute proof that something new is safe. . . . On the contrary, it is specifically intended for circumstances in which there is no absolute certainty. It simply puts the burden of proof where it belongs, with the innovator. (Saunders 2000)

The E.U. relies extensively on the precautionary principle as a guideline for decision-making. Generally, the U.S. views the E.U. as misusing the precautionary principle for

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States (Renzetti and Curran 1998, 339). Korten (1998, 42) writes, "in 1995, the combined sales of the world's top two hundred corporations—which employed only 18.8 million people, less than one-third of 1 percent of the world's population—equaled 28 percent of total world gross domestic product. . . . The annual sales of Wal-Mart, the twelfth largest corporation, made its internal economy larger than the internal economies of 161 of the world's countries—including Israel, Poland, and Greece."

trade protection, whereas the E.U. views the U.S. as not effectively evaluating all the risks associated with new science and technology, especially as it relates to agriculture and food. Ultimately, the precautionary principle is meant to be a tool in decision making, not to provide a final answer on the subject. In cases where the potential threats or harm remain debatable it is likely that there are going to be scientific experts on both sides of the dispute (Lee and Barrett 2002). Thus, the debate over the role of the precautionary principle in sound science is not likely to go away in the near future.

Finger and Schuler (2001, 63) claim that interest in the debates concerning the precautionary principle and sound science is limited to rich countries, while debates within the W.T.O. surrounding "multifunctionality" of agriculture are more important to developing countries. While generally true, it must be recognized that the debate regarding sound science is a debate that many countries (developing and developed) do not have the privilege of participating in due to lack of resources for funding the scientific research that is necessary to participate. In addition, to see the issue as separate from the multifunctionality debate (see below) creates a false division between the two areas.

Summarizing the multifunctionality debate, the E.U. asserts that the unique multifunctional qualities of agriculture and food in society should be taken into account in the construction of trade rules for agriculture. Food-exporting developing countries oppose the concept of multifunctionality, instead advocating that trade rules for agriculture and food should be treated like all other goods. This position is held particularly by members of the Cairns Group, which includes South Africa, and aims at opening the E.U. and the Japanese markets to developing countries (Finger and Schuler

2001). Alternatively, there are developing countries with a less developed agricultural sector. Food-importing developing countries, generally agree that protection of developed countries' (i.e., the E.U., U.S. and Japan) markets must decline. However, they argue that developing countries should be able to invoke the use of multifunctionality when implementing quotas and subsidies that they deem necessary for rural development or food security (i.e., food is multifunctional to developing countries because it involves issues of economic development).

To date, the only meat-related trade dispute that the W.T.O. has ruled on is an exemplar of the precautionary principle debate. The case involves whether the E.U. can ban imports of meat from farm animals that are administered natural or synthetic hormones used to promote growth. The U.S. challenged the ban and the E.U. defended its position by arguing that the SPS Agreement explicitly allows W.T.O. members to adopt standards that are stricter than international norms if those standards are based on an assessment of risks (Victor 2000). Initially, the W.T.O. Dispute Panel ruled against the E.U. on three criteria. However, the W.T.O. Appellate Body overturned two of the Dispute Panel's rulings and in the end only endorsed the ruling that the E.U. failed to base its SPS measures on risk assessment (*Ibid*). Two important consequences of this case include the overturning of the Dispute Panel's ruling by the Appellate Body. The ruling was overturned because the Dispute Panel interpreted the SPS Agreement as too narrow and potentially resulting in "international standards becoming the straightjacket of trade that many countries fear" (Victor 2000, 142). Second, despite the W.T.O.'s ruling the E.U. has yet to officially lift its ban on meat from animals treated with growth promoting hormones. This effectively sends the message that the most powerful actors in

the international trading system can remain in breach of a W.T.O. ruling (Spriggs and Isaac 2001). In response, the U.S. received authorization from the W.T.O. to impose retaliatory tariffs of 100 percent on imports from the E.U. (Rosson et al. 2000).[26]

In summary, most countries are moving towards mandatory standards that have been set *de jure* by Codex Alimentarius, and complemented by the creation of the W.T.O. (FAO 2001). As a result, standards are moving towards global uniformity. Spriggs and Isaac (2001) suggest that food safety standards are converging. These standards impact and influence industries that are located in both export and domestic markets. They write, "even countries that had no strong domestic reason to improve their food safety had an international imperative to do so – if they wanted to gain and maintain access to international markets" (Spriggs and Isaac 2001, v). In order to evaluate the claim made by Spriggs and Isaac (2001) let us turn to a discussion of South Africa's red meat industry.

Current Issues in the South African Red Meat Industry

Presently, the majority of black South Africans are confined to 13 percent of the land.[27] One quarter of commercial farmers (97 percent of whom are white) produce 80 percent of food output, while approximately one million black families in the former homelands generate 5 percent of marketed production (Winberg 1996; de Wit 1997; Lipton 1993). A preliminary effort to reform the agricultural sector occurred in 1996,

[26] The fact that the W.T.O. has given approval for the U.S. to use trade restrictions against the E.U. in order to promote free trade is slightly ironic.

[27] Black South Africans make-up approximately 75 percent of the population, followed by 13.6 percent Whites, 8.6 percent Coloureds, and 2.6 percent Indian. Of all black South Africans, 60.7 percent are categorized as poor, while 38.2 percent of Coloureds, 5.4 percent of Indians, and 1.0 percent of all white South Africans are poor (May et al. 2000).

when the government passed the Marketing of Agricultural Products Act to disband all marketing boards (Act No. 47 of 1996). After the passage of the act the Meat Board officially ended its operational activities in December 1997.

As the Meat Board prepared to close, several of the Board's members agreed to work towards the creation of a Section 21 (non-profit) body to oversee the industry. The decision to establish a Section 21 body was a standard practice adopted by several of the agricultural boards. Generally, economic concerns including issues related to food safety, maintenance of regular production and distribution cycles, and a general desire to create stability in an industry during turbulent times, contributed to the establishment of Section 21 organizations.[28] Thus, for the red meat sector, the South African Meat Industry Council (SAMIC) was established as a Section 21 company, in which its founding members intended to take over the responsibilities of the old Meat Board. However, the creation of SAMIC was not fully supported by all participants in the commercial industry and SAMIC's claim as a representative of the industry was contested by other actors in the industry.

The levy money that was left after the closing of the Meat Board provides a good example of the divisions that existed (and continue to exist) in the industry. When the Meat Board closed, a point of debate occurred over who controlled the money left in bank accounts from levies raised at the point of slaughter. SAMIC, seeing its' role as the industry representative, saw this as money that they should use to allow them to properly promote the interest of the industry. The producers saw this money as their money, since it was they who paid the levy at the point of slaughter. The consumer groups argued that

[28] A more critical interpretation of establishing a Section 21 organization was to ensure that dominant commercial producers, processors, and distributors (who were white South Africans) maintained their positions of power. Interestingly, this strategy failed for the dominant actors within the red meat industry.

the producers simply passed on the cost of the levy to the consumers and therefore, this money rightfully belonged to the consumers. The abattoir owners argued that the money was needed to continue to properly institute good hygiene and food safety controls within the abattoirs. In the end, the money was placed into 6 different trusts, with each trust focused on a different aspect of the meat industry (e.g., abattoirs, research and development, etc.). In addition, it should be noted that the closing of the Meat Board did effectively redistribute the power that a few groups had over the industry, which was the government's intention. However, the redistribution was for the most part limited to only those people who were already participating in the industry, with very few new entrants. Today, SAMIC's board is made up of thirteen industry groups, including, but not limited to, four producer groups (extensive and intensive beef; pork; and emergent farmers – i.e., black South African producers), the abattoir association, a consumers group, the industry meat processing body, and an export/import group.[29]

In 2000, South Africa ranked approximately 14th in the world for beef and veal production, producing approximately 583,000 metric tons (mt) of beef and veal compared to 12,146,000 mt in the U.S. and 8,499,000 mt in Brazil, which rank first and second respectively. Comparing South Africa to New Zealand, which produces approximately 592,000 mt of beef and veal and is ranked 13th in the world for beef and veal production, reveals the differences in current export levels. New Zealand produces beef and veal at rates similar to South Africa, but with a drastically different population size (42.8 million South Africans versus 3.8 million New Zealanders). While South Africa imported 32,000 metric tons (mt) and only exported 7,000 mt of beef and veal, New Zealand imported 2,000 mt and exported 460, 000 mt of beef and veal (Sterling Marketing 2002).

[29] The thirteenth industry group was added to SAMIC 's board after the conclusion of this research.

Export marketing for livestock products could prove to be a growth promoter for the red meat industry and for rural areas of South Africa (mentioned as a general strategy for developing countries by Haan 1998). However, to compete internationally puts increased demand on maintaining animal health and food safety standards. According to the latest projections, by 2020 63 percent of meat will be produced in developing countries, whereas developing countries produced 56 percent of meat in 2002 (Haan et al. 2001). Higher-income developing countries, like South Africa, with a fairly developed agricultural sector are likely candidates as future leaders in developing countries' livestock production. The following quote addresses the opportunities and challenges facing countries such as South Africa:

> Approximately 150 million tons or about 1/3 of internationally traded agricultural commodities, are livestock products or livestock feed. The increase in demand combined with declining levels of protection and export subsidies (dumping) under the World Trade Agreement, may open *new opportunities for developing countries, but it also puts increasing demands on their animal health and food safety standards* . . .. It is being increasingly realized that domestic demand is not sufficient as an engine of growth for rural areas, and that exports are essential for robust rural income growth. Opening export markets for livestock products could be such a growth engine for the rural poor. (Haan et al. 2001, 5, emphasis added)

Several indicators exist that reveal that actors in the South African red meat industry are aware of the increasing emphasis on animal health and food safety standards. For example, the CEO of SAMIC noted in the 2000 Annual Report that the single biggest issue in the industry was food safety (SAMIC 2000). Specifically, two changes within the red meat industry reveal the new emphasis being placed on animal health and food safety standards. First, the South African Meat Safety Act in 2000 was passed by the government. The purpose of the act is "[t]o provide for measures to promote meat safety

and the safety of animal products; to establish and maintain essential national standards in respect of abattoirs; to regulate the importation and exportation of meat; to establish meat safety schemes; and to provide for matters connected therewith" (Meat Safety Act 2000, 2).[30] Second, there was a new company established in 2001 by SAMIC and two other industry groups, known as the International Meat Quality Assurance Services (IMQAS). IMQAS' mission statement is: "Through the integrity, innovation and technical capabilities of our staff, render professional, independent and internationally recognized quality assurance services to the meat industry of Southern Africa" (IMQAS 2002).[31]

In the context of discussing international trade and the increasing importance of standards, it is important to note that South Africa does not yet require by law a hygiene/risk management system. Today, most major meat trading countries legally require the use of a HACCP based system in meat plants, including the U.S., Australia, New Zealand, and Canada. Presently, the E.U. Commission is developing proposals for HACCP. HACCP stands for Hazard Analysis and Critical Control Points and is generally considered a food safety management system in which meat plants identify "critical control points" where contamination is most likely to occur. The plant then establishes performance standards and monitoring procedures for each of these points. HACCP is viewed as an improvement to the "poke and sniff" system used by inspectors in meat plants and food retail (Juska et al. 2003).

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[30] The new Meat Safety Act does not, however, stipulate the use of any particular hygiene system or method.

[31] IMQAS had hoped to obtain assigneeship from the National Department of Agriculture (NDA) to perform independent meat inspection services at abattoirs as stipulated in the new Meat Safety Act, but the Meat Safety Act (2000) has not yet been implemented and the NDA has not made a decision on whether IMQAS will be granted assigneeship (IMQAS 2003).

For trading purposes any importing country that uses HACCP domestically cannot require South Africa or any other country to use HACCP, but they can require that South African have a system in place that is deemed equivalent.[32] However, in order to implement HACCP, the system requires extensive record keeping, the kind not usually found among smaller companies, and a significant amount of investment in employee education and training. The South African government and a few in the industry that are export oriented recognize the need for HACCP for international trade purposes, but currently there are many other competing issues, including the desire to maintain small operators (who are least likely to be prepared for HACCP implementation). Therefore, HACCP (or an equivalent) is not likely to be a part of government legislation in the near future.

The South African government did introduce HAS (Hygiene Assessment System), which is based on a system used in the UK and has been further amended for South Africa. HAS is a risk based method of assessing hygiene standards arising from slaughtered livestock, the people working in the plant, the premises themselves, and any other relevant sources (MAFF 2000). Generally, abattoirs are scored using the HAS system and substandard scores lead to penalties. It is hoped that the system can also be used as a means to gauge improvement. HAS is not considered equivalent to HACCP, but simply as a preliminary step towards improving food safety and hygiene in the industry.

Another indicator of the increasing emphasis on animal health and food safety standards is several industry bodies and businesses that are pursuing labeling and

[32] When speaking of HACCP most publications refer to it as the "most effective" or the "best" method for preventing food safety problems. Using such strong superlatives makes it unclear how a country might go about proving that they have an "equivalent" system in place.

branding of their meat products. With branding there is an increased emphasis on traceability and control over the product from start (a specific animal from a specific farm) to completion (the piece of meat on the consumer's plate). Moreover, traceability is most easily achieved by reorganization of the structure of production, which is why several companies are shifting to vertical integration and centralization. These changes support Reardon et al.'s (2001) point that one strategic response pursued by agribusiness firms and farms in developing countries as standards increase in importance is the shift to the creation of private standards and private certification, labeling, and branding systems by large firms' and multinationals. Two other strategic responses are: (1) for medium to large domestic firms to lobby governments to adopt public standards similar to those in export markets in developed regions; and (2) for small firms and farms to ally with public and non-profit sectors to form standards and certification systems to access export markets and to bring institutional change to informal markets (Reardon et al. 2001). Both of these responses are evident within the South African red meat industry, although the latter strategy for small firms and farms is still in its infancy.

Having noted the positive change occurring for standards development in South Africa's red meat industry, it is important now to highlight a few problematic issues that continue to hinder the development of standards in the South African red meat industry as a whole. Over the last several decades, as developing countries experienced structural adjustments, there has been a decline in the number of civil servants and a decline in budgets for livestock services (Haan et al. 2001). For example, one study found a decrease of eleven percent in veterinary services staff in Sub-Saharan African countries over the last ten years (Gauthier et al. 1999, cited in Haan et al. 2001). South Africa is no

exception. As of 1999, sixty percent of all state veterinary positions were vacant (NAMC 2000). Such a severe reduction in state services is bound to hinder the delivery of a minimum level of public standards for the industry. In addition, as of September 2000, there was an initial outbreak of foot and mouth disease (FMD) at a pig farm in the northeastern part of the country with subsequent outbreaks in other parts of the country.[33] Due to the FMD outbreaks in the FMD free zones South Africa temporarily lost this designation, but regained O.I.E. (Office International des Epizooties) "FMD free zone" recognition in 2002. While a decline in public services may not have a direct impact on the ability to control outbreaks, certainly less oversight within the country compromises South Africa's ability to maintain animal health. In addition, South Africa shares borders with five countries that have even fewer civil servants for animal disease control.

Another concern is the issue of E.U. subsidization of farm products. Recall, that one complaint from developing countries is the failure of developed countries to fully liberalize trade. The E.U. sets levels of subsidies paid to exporters based on groupings (determined by the E.U.) of importing countries. Prior to 1997 the E.U. categorized South Africa in a zone 8, and as of January 1998, this shifted to a zone 9, which means the E.U. views South Africa as having no established beef industry. Therefore, the level of restitution payments offered to those exporting beef to South Africa increased after January 1998 (Roberts 1997; Commission Regulation No 2697/98). Currently, the E.U.

[33] The Uruguay Round Agreements allow countries to establish regions that are insect and disease free, even if the entire country may not be entirely free of the insect or disease (Rosson et al. 2000). South Africa has erected a fence that separates the section of South Africa where FMD is endemic from the rest of the country. The region behind the fence is referred to as the "red zone", which includes the FMD infected section and buffer zones for protection. The fence has sections with ladders so people can climb over the fence, but animals cannot get through. The open sections of the fence where roads run are, at least in theory, manned at all times to ensure animals do not pass from the red zone to the FMD free zone (unless the animals have been verified as FMD free). In 1995, the OIE (The Office of International Epizooties) recognized South Africa as having a FMD free zone.

and the U.S. continue to subsidize their farmers (Becker 2002a). Several export oriented farmers and industry actors in South Africa believe South Africa can compete internationally in the quality of its red meat products, but they argue that they cannot compete against government subsidies and meat arriving in South African markets at unfairly low prices (personal communication, 1999).

Finally, the structure of the red meat industry is an overarching concern for the development of standards. The divisions within the South African red meat industry can best be described as three networks within the red meat commodity chain, an export network, a domestic network in the commercial sector, and a domestic network in the informal sector. Some actors participate in all three networks, although the first two networks are largely separate from the third network. Due to the legacy of apartheid, resources have been distributed unevenly between these networks.

Three Networks

The first of the three networks in the red meat commodity chains is the export network. This network remains small, but is increasing in South Africa. The producers within this network are generally a few large beef feedlot producers and ironically goat owners in the informal sector. The beef is primarily shipped to the E.U., while the goats primarily go to the Middle East, especially Saudi Arabia.[34] Producers of beef tend to be

[34] The details of each of these exports are quite complex. Briefly, for beef, South Africa has reached an agreement with the E.U. that allows it to fill any of the unmet quotas that Botswana and Namibia do not fill. The E.U. categorizes Botswana and Namibia as developing countries and therefore grants them special status which allows them to export a set amount of beef per year to the E.U.. The E.U. does not give the same recognition to South Africa, and therefore, the E.U. has not granted South Africa any special export agreements. The goats that are sent to the Middle East are shipped live and must be free of puncture wounds to the skin, which makes the informal sector goats more suitable than goats in the formal sector that are usually identified with ear tags. This export market was still under development at the time that this research took place.

large and vertically coordinated, with traceability of the product (from farm to plate) in place. In order to export to the E.U., meat must be slaughtered through E.U. certified export facilities. In addition, all meat must originate from the FMD free zone of South Africa. (This is why losing FMD free status from 2000 until 2002 was so harmful for exporters.) Individual exporters are moving towards HACCP implementation; however they are in the minority within the industry.

Within the domestic commercial network there appear to be three subcategories, especially when observing divisions among consumers. The highest subcategory tends to provide beef that is export quality (and the price of the meat reflects this) to South African consumers. This means that traceability of the product is in place and the network is in the early stages of HACCP implementation. The highest category is generally only available at what are considered the elite supermarket chains in South Africa. The medium to lowest networks may have adopted the South African HAS method, but many have not. Generally, there is little difference between producers whose product goes towards the medium and lowest subcategories. The differentiation occurs based on the classification of the animal (A versus C grade),[35] the abattoir used (hygiene and technology available in the abattoir), and the type of handling of the meat post-mortem (including handling by butchers). As a side note, there is a tremendous shift underway from consumers purchasing meat in butcher shops to consumers purchasing meat in grocery stores. This follows a larger trend of an increasing number of supermarkets in Eastern and Southern Africa (Weatherspoon and Reardon 2003).

[35] Classification is optional. Therefore, some retailers sell unclassified meat. Chapter three will elaborate on this topic in more detail.

The final network is the informal domestic network. Actors involved in this network are best conceptualized as participating in a series of small networks, rather than one centralized network. The animals slaughtered in these networks are generally raised on the veldt (fields or grassland) in rural areas and are not always raised with the intent to slaughter, but rather may serve multiple purposes, including representing the wealth of a black South African male and his family. When slaughter does occur it often occurs under a designated (by the community) slaughtering tree. For those rural people who are in the business of slaughtering they generally slaughter based on demand within the local community, which usually consists of slaughtering one cow per week, or two in the busy season. Once the animal is slaughtered, the carcass is hung, usually by the roadside, and a fire is made. The fire allows people to purchase a piece of meat that is then cooked over the fire and consumed on site. Some of the meat is purchased to carry back home, but an overwhelming amount is consumed at the point of purchase. Bush slaughtering, as it is often referred to, was outlawed during the apartheid era. Generally, because there was a lack of butchers servicing the rural areas of South Africa, bush slaughtering has always existed.[36] In the current situation some provinces still criminalize bush slaughtering, while other provinces have chosen to allow and accept bush slaughtering, with the intention of eventually "upgrading" and incorporating these butchering operations in rural areas into establishments recognized within government regulations.[37]

Actors that move between informal domestic network(s) and the other two networks include: abattoir trainers, the actual hides of the cows slaughtered, and

[36] This was true for white and black rural area inhabitants in South Africa, although most people in South Africa are referring to black South Africans when they speak of bush slaughtering.
[37] According to new government regulations, all abattoirs must have a cold storage room, which most rustic, bush slaughtering abattoirs do not.

consumers. The abattoir trainers (one of the six trusts established after the closing of the Meat Board) are a group whose long-range goal is to upgrade and eventually incorporate bush slaughtering into more formal markets. The abattoir group has tried to minimally organize the slaughterers into an association in a few provincial regions that tolerate bush slaughtering. The trainers then arrange to visit members of the association on days when the members are slaughtering a cow to show members techniques for slaughtering in a more hygienic manner than they currently use (including hanging the animal from a tree instead of laying the animal on the ground). They also offer abattoir knives for sale at discount prices (although still considered a hefty fee to pay by poor rural inhabitants).

The hides of the cows slaughtered in one South African region (KwaZulu-Natal) have actually begun to make it into the formal, commercial market.[38] In the past, bush slaughters would bury the hide and any items viewed as non-edible (stomach content, etc.). However, several hide and skin collectors drive trucks around the vast region training bush slaughterers how to preserve the hides and providing them with the supplies to do so (a tarp and a large container of salt) in exchange for money on pick-up days. These hides are then delivered to hides and skins processors (who pay the collectors a significantly higher sum for the hides) and the hides are processed and sent to other countries that use the hides to make shoes and purses. Finally, some consumers move between this network and the commercial domestic network. The consumers most likely to move between these two networks are persons who regularly travel between rural and urban areas or persons in rural areas who utilize both resources for obtaining meat.

[38] During my first research trip in 1998 this was not occurring; however, by my return in 2000 this had become a thriving business, with a significant number of competitors.

There are tremendous tensions between the three networks. Black South Africans who want to become commercial producers feel that there is a lack of opportunities (e.g., lack of land and capital for start-up costs). For actors already involved in the first and second networks there are tensions over topics of hygiene and food safety standards. Several participants in the industry worry that less scrupulous actors (often actors that operate in a separate network) could harm the entire industry. The harm that they could cause occurs in two forms. The first form of harm involves animal diseases, such as FMD, in which an actor actually causes an outbreak within the industry. This occurred in 2000 while this research was being conducted. A pig farmer obtained illegal swill from a ship that docked in Durban's harbor and fed it to his pigs. The swill was contaminated and this caused an FMD outbreak in the region, which eventually led to South Africa temporarily losing its FMD free status. The second type of harm is more indirect -- that is the worry that substandard actors will harm the reputation of the industry. For example, when news of the FMD outbreak was made public, sales of beef in that region of South Africa declined for the next three months.[39] In addition, many in the industry who are investing money to maintain hygiene and safety resent that they have competitors who are not being held to the same standard.

[39] Although FMD is considered the most contagious animal disease, FMD rarely infects humans. How humans become infected is not fully understood, but generally all reported cases have been caused through direct or indirect (consumption of animal products) contact with FMD infected animals. Generally, FMD in humans is very mild and goes away within a week (WHO 2001). In addition, it appears that the general public of South Africa did not understand what FMD was, and therefore, stopped purchasing meat for fear that meat products were not safe.

Private and Public Standards Setting

As the South African government and industry engage with the development and implementation of standards there are organizational debates over who is best positioned to set standards, the public or the private sector. Although writing about safety standards in the U.S., Cheit's (1990) discussion can be used to understand the current debates within South Africa. Cheit (1990) argues that there is skepticism towards standards that are set by the private sector due to the belief that there are too many political pressures within an industry that will control the development of standards. In addition, standards in the private sector are considered too voluntary with some industry participants not adhering to the standard or watering it down. Critics of public sector involvement in standards development focus on the slow development of standards and the inflexibility and economically unreasonable steps for implementation following government passage (*Ibid*). Of course, the development of standards does not have to be an either/or proposition. Indeed, public and private standards setting can operate to complement one another.

Cheit (1990) identifies four basic organizational forms that account for most private standards setting. These include trade associations, professional societies, general membership organizations, and third-party certifiers. Of these four basic organizational forms of private standards setting, South Africa's red meat industry is dominated by trade associations and, like most industrial agricultural producing countries is increasingly exposed to third party certifiers. According to Cheit (1990, 23), trade associations are among "the best known and the least trusted forms of private standards-setting." Trade associations often have a homogenous group of members and are created to advance the

interests of their membership. Therefore, such groups are often viewed as working to create standards that benefit their membership, which may include creating anti-competitive standards or standards that are generally not in the public interest.

Relatively new to South Africa are third-party certifiers.[40] Generally, third-party certifiers certify that products and companies are complying with standards. Most of the time third-party certifiers rely on standards established by others, but sometimes third-party certifiers also set standards. IMQAS (International Meat Quality Assurance Services) was created in 2001 with the intent of being a third party certifier. However, several of the key creators of IMQAS are also key participants in the main trade associations in South Africa. Thus, significant skepticism among various industry participants and government personnel exists regarding the intentions of IMQAS and whether IMQAS really is an impartial third-party certifier.

Finally, it is important to emphasize that with the South African elections in 1994, not only was a new democratic government elected, but South Africans also opened their doors to international trade like they had not experienced in the previous 40 years. South Africa, like other governments in transition, has implemented neo-liberal economic policies that open the country to foreign trade and investment (Wiley et al. 2002). Several globalization theorists argue that the global economy has reduced the power of the state (Held 1995; Waters 1995). However, "the state continues to have essential – and contradictory – functions: (a) to provide infrastructure and a stable regulatory environment for private corporations; and (b) to maintain some level of social welfare

[40] The exception being inspections conducted by SGS, an international third party certifier, and the Perishable Products Export Control Board (PPECB), formerly a government controlled marketing board.

and natural environment that will support human habitation and economic production" (Gould et al. 1996 cited in Wiley et al. 2002: 180).

Opening South African markets to global trade along with the simultaneous increase in the importance of standards can best be described as not only changing the "rules of the game" for participants in the red meat industry, but also changing the referee. What this means is that with the end of apartheid, the government set out to change the structure of the industry, (i.e., closing marketing boards) as part of the larger goals of integrating the dual agricultural system and promoting the nation's economic growth. However, as neo-liberal economic policies were introduced, the government no longer served as the primary actor with which the red meat industry had to engage and respond. Instead, those involved in the commercial red meat industry had the opportunity and challenge of engaging with a multitude of actors, including actors in red meat networks in other countries.

In closing, actors within South Africa's red meat industry have experienced significant changes in a relatively short period of time. Industry actors must respond to structural changes within the industry, while also directly and indirectly engaging with international structural changes. Chapter Four will further elaborate on the ways in which standards emanating from other countries contribute to the construction of South Africa's red meat industry. Before turning to a discussion of the impact of international standards, Chapter Three overviews the methodology used for data collection and elaborates on issues encountered during field research.

CHAPTER 3

Methodology

Chapter three focuses on the issue of research design documenting both conceptualization and implementation of this design. The chapter begins with a discussion of the selection of South Africa as the country of study. This discussion is followed by a review of Actor Network Theory (ANT) and Commodity Systems Analysis (CSA), the methodological frameworks utilized in this research project. Included is an overview of issues confronted in the field while conducting the research (e.g., the influence of gender while conducting research). Finally, an extensive focus is placed on issues of data collection and analysis, including question construction, sampling, coding schemes, and general qualitative research issues.

The Research Experience

With the post-apartheid transformation underway in South Africa, I had the opportunity in 1998 to go to South Africa to conduct an exploratory investigation into the changing agri-food commodity chains. With a specific interest in (a) the W.T.O. and its effect on developing countries and (b) standards and their effects on agriculture, South Africa was chosen as an ideal country of study. This was due to the fact that South Africa has a fairly developed agricultural sector (unlike some of the more marginalized developing countries) and rapid changes were taking place in society and in the agri-food sector. This included the advancement of neo-liberal economic policies. Standards are often proposed (innocently and not so innocently) as merely technical details, and it can be very difficult to recognize the social and political aspects of standards (Bowker and

Star 1999). Two means by which to assess the social and political consequences of standards and standardization include (1) speaking with people who are partially excluded from the communities that utilize standards and standardization and (2) observing moments when standards change, because it is easier to see the invisible work and the invisible memberships that have anchored them in place (Star 1991). South Africa offered both forms of access, excluded communities and changing standards.

Initially, I set out to study the fruit industry (citrus and deciduous) because South Africa serves European markets during Europe's winter months. Pursuing the fruit industry meant I was effectively investigating how international actors (including standards) were shaping one of South Africa's export markets. However, upon arriving in South Africa two events changed my long-term research focus. First, I discovered that many actors within the fruit industry were not very eager to speak with a researcher. Actually, almost everyone I contacted spoke with me, but most seemed very apprehensive in answering many of my questions. From what I can deduce there were two reasons for this cool reception. The first is the structure of the industry itself. During apartheid one company dominated the fruit industry in a monopolistic manner. In the post apartheid era, this one company, while no longer possessing a monopoly over the industry, is still financially dominant. As a result, a significant amount of tension surrounded the industry regarding who would be the "winners and losers" in the new free trade atmosphere. A significant number of actors were very concerned with their competitors and very few of them were eager to speak with an outsider who they had no reason to trust. In contrast, the meat industry was more of an oligopoly during apartheid, and although there were similar tensions related to the changing industry, it seems that

many of the major actors during apartheid had already lost their power (financially and politically) by the time I arrived in 1998. The second reason for the cool reception by actors within the fruit commodity chain, especially farmers, may have had to do with the fact that the fruit industry in South Africa has been scrutinized by researchers for poor labor practices. Most fruits must be handpicked and therefore, a massive amount of labor is required. During apartheid laborers were very poorly treated, with minimal labor standards in place and enforced. Thus, my being yet another researcher, and a social scientist, did not facilitate my acceptance by industry actors.

The second significant event that changed my long-term research focus came about as a result of meeting several people who worked for SAMIC and the Red Meat Abattoir Association. In general, everyone I spoke with in the red meat industry seemed very eager for me to pursue research focusing on the red meat industry. In addition, within SAMIC there was a position dedicated to "Food Standards and Exports" which indicated to me that despite red meat being a primarily domestic product, the industry itself was concerned with standards and developing export markets. After uncovering many interesting facets within the red meat industry, I realized an even more interesting research question would be to ask, "How do international standards impact a primarily domestic market?" This is a question that very few scholars in agri-food studies have asked.

Qualitative research was chosen as the best method for attempting to access the issues of interest when returning to the field in 2000 on an National Science Foundation (NSF) grant. The strength of qualitative research is that it accounts for the complexity of group behavior, reveals interrelationships among multifaceted dimensions of group

interactions, provides a context for behaviors, and helps determine questions and types of follow-up research (Palmquist 2003). Earlier critics of qualitative research argued that there is a lack of generalizablity inherent in qualitative research, especially case studies. This remains true if generalizability is understood strictly in the experimental scientific tradition with an emphasis on replicability of results (Schofield 2002). In recent years, however, qualitative scholars have reconceptualized generalizability in several ways, but all generally argue that qualitative research can be used to "speak to or help form judgment about other situations" (*Ibid*, 179). Adopting two terms first proposed by qualitative researchers in the field of education, it is argued that this study provides comparability and translatability (Schofield 2002 citing Goetz and LeCompte 1984). Comparability refers to "the degree to which components of a study – including the units of analysis, concepts generated, population characteristics, and settings – are sufficiently well described and defined that other researchers can use the results of the study as a basis for comparison" (Ibid, 228). Translatability refers to a clear description of one's theoretical stance and research techniques. Due to the methodology used in this study (discussed below) and the topic of concern (i.e., standards in agriculture) this study can and should be used as a point of comparison with future studies. Specifically, future studies which focus on developing countries and issues of international trade will provide an interesting point of comparison.

With the intention to study the socio-economic, political and historical aspects of standards, four complementary approaches were used to conduct this research. The methods included: (1) semi-structured interviews, (2) participant observation, (3) a review and analysis of technical documents related to the historical development of red

meat standards, and (4) a review of official statistics on the red meat industry in South Africa. Before elaborating on each method, the methodology used in this study and fieldwork issues are discussed.

Methodology

This study focuses on the red meat commodity chain in South Africa. Commodity chains are firmly rooted in the political economy literature (Gereffi and Korzeniewicz 1994; Wallerstein 1986) and beginning in the 1980s became prevalent as a methodology for studying agriculture and food systems (Friedland 1984; Busch 1990). Similar to the discussion of the convergence of political economic theory and actor network theory (ANT) in chapter 1, there are also points of methodological convergence between political economic commodity systems analysis (CSA) and ANT. Ultimately, both are empirically driven methodological approaches and it is argued that CSA and ANT are effective as a methodology when combined together. Below is a summary of each approach, followed by a discussion of the strengths of combining the two.

CSA was first proposed by Friedland (1984) as a way to study the social organization of agricultural commodity production. He proposed five basic foci for CSA: production practices, grower organizations, labor, scientific production and applications, and marketing and distribution. Several other categories, in particular consumers, have since been proposed as additional areas of focus. Generally, these five categories continue to form the basic premise of CSA research. When studying a commodity chain Friedland argued for a "broader methodological posture" and emphasized that there is no single methodological procedure. Instead, utilizing historical, institutional, quantitative,

and qualitative analyses it can be assumed researchers operating within this framework can delineate a discrete commodity system. Furthermore, research can specify the topics that must be studied and the appropriate data that must be collected if the commodity system is to be understood (Friedland 1984). In addition, no commodity system stands alone, and therefore, it should be recognized when and where systems intersect, and the ways each system is significantly affected by the others (Busch 1990; Friedland 1984).

While CSA has always claimed to be a method, ANT was initially proposed as a theory and a method for laboratory studies (Callon 1986; Latour 1987). In more recent discussions, Latour (1999) has argued that the expansive use of ANT does not hold true to the theoretical ideas of ANT as conceptualized by Callon (1986) and Latour (1987) and therefore he calls for an abandonment of claims that ANT is a theory and instead proposes that one simply view it as a method.[41] As a method ANT simply asks that a researcher follow the actor. Thus, if the red meat industry is the focus of the research, then the researcher would follow all the actors (human and non-human) involved in red meat production. However, ANT's basic premise, to follow the actors, still leaves many unanswered questions for the researcher. For example, questions are raised over how the researcher determines the starting point for her/his investigations and which actors should be followed.

CSA and ANT share many similarities and combined together each complements the weaknesses of the other approach. First, both approaches follow the actors in a commodity network. Precisely because both methods follow the changes that a commodity undergoes as it moves through a subsector, a more nuanced understanding of

[41] Law (1999) and others still view ANT as a useful theory and ANT is used as both a theory and a method in this work.

global change can be had (Busch and Juska 1997). In addition, by focusing on commodity chains what is explained and can be explained is more limited than attempts made by grand theories (*Ibid*). However, within CSA and ANT there are differences in how humans and nonhumans are treated as actors in the commodity chain. ANT proposes that the two be treated symmetrically as actors/actants in a network (Callon 1986; Latour 1987). Friedland (2002) argues that when CSA is properly conducted nonhuman actors are incorporated. However, Tanaka (2002) argues that the significant role played by nonhumans in commodity studies is taken for granted with CSA, and therefore, may not be articulated in the same manner that is allowed for in actor-network studies.

Second, despite the fact that both approaches evaluate the practices of actors in the chain, ANT enhances the recognition of changeability and fluidity in the network by extending this to a conceptualization of power within a commodity chain. Both approaches recognize that there are power relations among actors in the network. However, CSA assumes power is built into the structure of the market and therefore rarely demonstrates how power becomes distributed among actors or how power is transformed in a commodity system (Tanaka 2002). ANT, on the other hand, emphasizes that power is gained through the ability to enroll more human and nonhuman actors in a network in order to modify a thing or influence a decision, thereby enhancing the position of the network and each actor's position in the network (Tanaka 2002; Tanaka and Busch 2003). This opens up many more opportunities for the researcher to observe relations of power in a commodity chain.

Finally, a shortcoming of CSA is that the network of social relations surrounding a commodity only exists in the market (Tanaka 2002). Thus CSA rarely looks at the process by which a given commodity market emerges. In addition, because there is a lack of focus on the emergent features of a commodity chain, there is a tendency to only describe, but not explain how commodity chains are transformed over time and why some actors come to dominate, while other remain marginal. Because ANT emphasizes the performative character of all relations, changes within the commodity network are more fully captured and explained (*Ibid*). Recognizing the strengths of CSA and ANT, this study used a methodological combination of the two approaches.

Entry into the Field and Fieldwork Issues

Fieldwork was conducted from October 2000 until July 2001. The first phase of research was primarily spent in the cities of Pretoria and Johannesburg and the surrounding commercial farm areas and processing plants. Day-to-day operations were conducted at the South African Meat Industry Council (SAMIC) offices in Pretoria. In 1998, the then CEO of SAMIC invited me to return to South Africa and informed me that if available they would provide office space. When I contacted SAMIC in 2000 they made good on their offer to give me office space, although this required that one of SAMIC's veterinary staff let me use her office. By locating myself within SAMIC I was able to obtain a much closer account of the industry and the politics of the industry than would have been possible if I had situated myself within an academic environment. In addition, my association with SAMIC facilitated my gaining access to several major participants in the red meat industry and several meetings and conferences that most

likely would not have occurred otherwise. The connection with SAMIC in general assisted my research in very important ways, especially in studying the commercial industry. However, the link with SAMIC limited my research in terms of accessing the views of people who either do not agree with the role that SAMIC plays in the industry or are not a part of the same networks. This includes some people within the commercial sector, government personnel, and the emergent sector. Simply put, SAMIC is located within a series of networks, most of which are detached from the informal and emergent networks. In an effort to reduce the distance between the networks in which I was located (by my association with SAMIC) and the informal network, I opted to affiliate with the School of Development Studies (SODs) at the University of Natal-Durban during my second phase of research.[42]

The second phase of research was primarily spent in the city and surrounding areas of Durban and in the northern rural areas of Kwa-Zulu Natal. During the second phase, both commercial (primarily white South Africans) and emergent (primarily black South Africans) farmers were interviewed. Affiliation with the University of Natal-Durban, gave me the opportunity to utilize library resources and engage with other academics studying similar topics. Upon hearing of my topic, most familiar with the University of Natal suggested I contact the Pietermaritzburg campus that houses the agricultural sciences. Historically, much of the agricultural sciences have been linked to the South African commercial sectors. While I did speak with a few professors and utilize the library at the Pietermaritzburg campus, affiliating with SODs allowed me the opportunity to identify contacts involved in the informal red meat networks.

[42] I actually attempted to affiliate with a historically disadvantaged university (HUD), but persons within this system suggested that due to financial crisis I would find more resources and assistance at UND.

Race, Gender, and Citizenship

When conducting field research it is important to recognize that the researcher is always situated in the action of her research (Anderson 1993 citing Rapp 1983). Thus, it is necessary to be aware of how one's own presence influences and shapes the research. Entering the field of South Africa, I was aware that my racial status would create limitations to my study. As Warren (1988, 19) notes, "respondents assign the fieldworker to what they see as his or her proper place in the social order." In the context of South Africa my white skin was significant in a variety of ways (that I will never fully know) to the people I interacted with in the field. Among whites the times I was made most aware of my skin color were negative moments when prejudiced whites assumed I was "white like them," meaning they felt comfortable sharing their views about other racial and ethnic groups. Among blacks, I was made aware of my skin color when I sensed a certain amount of distrust and hostility (Baca Zinn 1979). However, there were times when other factors, including my U.S. citizenship, my gender, and my education, seemed to trump people's ideas about my whiteness. On several occasions when I was in rural areas of KwaZulu-Natal the distrust seemed to disappear into curiosity and an eagerness to engage with me when people discovered I was a student from the United States and I spoke a limited amount of Zulu.[43] Well aware of the challenges posed by my racial classification in South African society I entered the field using the recommendations made by Anderson (1993) in her article "Studying Across Difference." Building from Collins's (1986) work which suggests that all intellectuals can learn to read their personal

[43] All of these factors introduce forms of inequitable power relations between the respondents and myself. The issue of inequality between the researcher and participants is discussed in greater detail later in this chapter.

and cultural biographies as significant sources of knowledge, Anderson (1993, 42) writes, "Majority group scholars can develop and utilize tensions in their own cultural identities to enable them to see different aspects of minority group experiences and to examine critically majority experiences and beliefs."

My gender contributed in a positive and a negative manner to my research. In a positive manner, I was generally viewed as harmless and on occasion my presence seemed to be amusing to some in the industry who could not comprehend why a white woman from America (as the people in the field referred to the U.S.) would have any interest in the topic of red meat. Other female researchers have also had the experience of being perceived as harmless (Gurney 1985; Warren 1988). This perceived harmlessness occasionally gave me access to venues, people, and documents I feel certain would not have occurred otherwise. On one occasion an invited speaker of prominence in the commercial industry arrived slightly late to a meeting of emergent farmers that I was attending. The meeting was being held at a retreat a few hours from any major city. Prior to his arrival I was the only white person attending the meeting, and one of only about 5 females out of 40 attendees. The speaker was so surprised by my presence at the meeting he made note of it in his opening remarks and he continued repeating his surprise to me each time I saw him for the duration of my research. Without reading too much into this I sensed that underlying his comment was some concern as to *just how much* I was learning about the industry.

A disadvantage of my gender is the amount of informal socializing for which I was not present. There were plenty of occasions when I was not invited to have a beer with the rest of the men. Based on gossip of incidents that occurred during these outings,

this lack of invitation had significantly more to do with my gender than with my outsider status. There were also occasions when I declined invitations to dinner or drinks because it was unclear what the intention behind the invitation was. Indeed, these are moments when I experienced the "sexual politics of fieldwork" (Warren 1988, 36).

A final example will serve to reinforce the moments where gender and race shaped the data I collected. Invited by a local farmer, I attended a regional farmers' meeting in a rural area. Approximately 15 white male farmers attended. The meeting was held at the home of a farmer whose farm had been in the news that week because a white farm worker on the farm had shot and killed a black person who was alleged to have been stealing sheep.[44] There was tension in the air because this incident caused concern over possible reprisals to the farm, the farmer, or other white farmers in the area. I was the only female in attendance, although the farmer's wife was in the house. After taking notes and observing the meeting, there was a braai (cookout), which offered a more informal opportunity to speak with farmers and listen to their perspectives. However, it was starting to get dark and, since I was traveling alone in a rural area on dirt roads (without road signs), for safety reasons I had to leave to return to where I was staying. In this example, my race clearly assisted my entry into this group, while my gender posed limits to the conditions under which the data was collected.

The point of raising the impact of gender, race, and citizenship on field research is that, like all research, my portrait of the red meat industry is only a partial one. My research is partial in distinct ways due to my observations and perspective being bounded by the social roles assigned to white females within the South African red meat industry

[44] Stock theft is a significant problem for livestock producers in South Africa. According to figures from the Stock Theft Unit of the South African Police 72,695 cattle and 139,288 sheep were stolen in 1999 (NAMC 2001).

(Warren 1988). Ultimately, my goal when entering the field was to capture an understanding of both the commercial and the emergent sectors, which effectively required accessing whites and blacks. At the conclusion of my field research I had made significant strides in trying to grasp the emergent sector, but despite these efforts my research data more fully captures the inner workings of the commercial sector than the emergent sector. This is because the emergent sector is generally less organized and centralized. I spoke with many people involved in the emergent sector, including researchers, farmers, and businesspeople, and few of them seemed to be in contact with each other.

Second, there is a roadside bias in this study (Chambers 1983). While I drove many dirt roads, most the dirt roads were not too far off the paved roads due to safety concerns (my traveling alone for a large portion of the study), the limits to the vehicle I was driving, and ultimately, time constraints. Third, the social distance created between rural black South Africans and myself due to the combination of my race, gender, and language created barriers to communication. Despite my best intentions, it simply proved very difficult to interview emergent farmers and other actors in the informal network.

Data Collection and Analysis

Interviews. Other works have noted the key to a successful interview is knowing enough to ask intelligent questions without knowing too much (Ogasawara 1998, 15 – also citing other works). With a previous trip to South Africa in 1998, where I first met people in the South African meat industry and then with subsequent library research, I returned to the field in 2000 with enough of an understanding of the red meat industry to

ask a series of refined questions that would permit understanding of a very complex set of actors and networks. However, because of the elusive topic (the political and social issues embedded within standards), there was concern that most interviewees would not explicitly identify with queries about standards in the industry.[45]

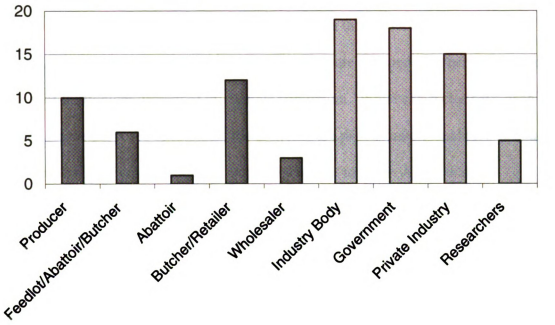
All the interviews were collected using snowball sampling, in which every person interviewed was asked to recommend others in the industry who should be interviewed. Interviewees were not a random sample, but rather were selective and theoretical (Middendorf 2002; Strauss 1987). Selective sampling refers to the "calculated decision to sample a specific type of interviewee according to a preconceived . . . set of dimensions . . . which are worked out in advance" (Strauss 1987, 39 quoting Schatzmah and Strauss 1973). Thus, my intention from the outset of the study was to follow the actors in the commodity chain. Theoretical sampling, which asks what groups does one interview next and for what theoretical purpose, was also utilized in this study (Strauss 1987). The intention of the interviews was to gain a diversity of perspectives within the red meat industry so as to illuminate the politics of standards in the industry.

Table 3.1 shows a general breakdown of the positions held by the people I interviewed. There are a number of interviewees that could be classified into more than one category, for example, someone who represents an industry body and also owns a farm. All interviewees are only classified once. When I interviewed the director of an industry body and asked a series of questions related to his work as the director I then categorized the interviewee as someone representing an industry body. Thus, even if the

[45] Most interviewees asked for a clarification of what I meant by standards. Usually my response was to identify standards that they (the interviewee) might identify with, such as food safety standards when speaking to abattoir and/or processing plants, or the grading system when speaking with farmers.

director was also a farmer, the interviewee's "farmer" status is not acknowledged within this categorization scheme.

Table 3.1 Number of People Interviewed by Category



A total of 95 formal semi-structured interviews were conducted. Formal interviews refer to interviews where the person agreed to allow me to ask a series of questions and take notes as we spoke. There were also several informal interviews that I conducted, especially with emergent farmers. Generally, these were informal interviews because I was in the presence of others (usually persons of authority in the industry or the emergent farmer's peers) and therefore did not have the time or the proper situation to conduct a more formal interview. However, the informal interviewees were made aware of my research and agreed to speak with me. Recognizing the informal interviews is important because of the seemingly small number of emergent producers formally interviewed (n=5). Nonetheless, as mentioned previously, the limited number of

emergent farmers interviewed also reflects my position within specific networks in the industry.

Looking at Table 3.1, the largest categories of interviewees are people involved with industry bodies related to red meat and the government. However, it is worth mentioning that when all persons directly involved with the production process (e.g., producers, abattoir persons, butchers, and wholesalers) are grouped together, they make up a total of thirty-eight percent of the sample population. While categories have been identified for the purposes of research, the divisions are problematic in reality, especially when interviewing persons within the largest operations in South Africa that are increasingly vertically integrated. Thus, there are a growing number of feedlot operations that own their own abattoir and some sell their products through their own butcheries.[46]

There were two questionnaires, one designed for farmers and one designated for people working in government and the rest of the industry (beyond the farm gate). During the first wave of interviews (n=65) respondents were asked the same series of open-ended questions, and each was allowed to elaborate on the points that they found most relevant. In the second wave of interviews (n=30), the questionnaire was modified slightly in order to address questions that arose from the first wave of interviews. In addition, several questions that proved to be irrelevant were dropped from the interviews (see questionnaires in Appendix B). Interviews were not recorded, but notes were typed within twenty-four hours after the interview. The length of each interview varied from thirty minutes to five hours, with the average interview lasting one hour. The majority of people interviewed were white males, which is consistent with the make-up of the commercial red meat industry as a whole (refer to Table 3.2).

[46] Almost all abattoirs I visited had local black residents who bought fresh offal from the abattoir.

Table 3.2. Gender and Racial Composition of Interviewees [47]

	Male	Female	**Total**
White	78	9	87
Black	4	0	4
Other	3	0	3
Total	85	9	**94**

Interview data was extensively coded and compared using NVivo (a qualitative software program) and concepts and linkages were developed from the data. Each interview was coded first by question (i.e., comparing all responses to the same question) and then by themes. For example, all comments about food safety were grouped into a node or category. In addition, to grouping by theme, responses were analyzed based on the category of the respondent. Therefore, all interviews with government personnel or all producers (which was further broken down into extensive, intensive, and emergent) were reviewed as a group. This allowed for an improved understanding of how the respondent's position in the networks shaped their perspectives.

Participant Observation. As stated above, generally only interviewees who are partially excluded from the communities of practice will recognize areas they see as socially or politically contentious.[48] Therefore, beyond interviewing a diverse range of people involved in the industry and a few more marginalized participants, I also conducted a significant amount of participant observation as a means to access the politics of changing standards and standardization in the industry.

[47] This table does not include a group interview that was conducted with emergent farmers. The group interview had approximately ten black males and two black females present.

[48] I quickly learned that partial exclusion, but not total exclusion, was most beneficial for a discussion of standards. Those that have been totally excluded from the commercial red meat industry, (i.e., black South Africans) due to the legacy of apartheid are caught up in questioning the bigger politics of land and resources. Thus, politics of standards were not as immediately relevant to actors who have been completely excluded from participation in the red meat industry.

Whyte (1984) identifies the importance of linking interviewing and observation. Whyte (1984, 96) writes, "interviewing helps us to interpret the significance of what we are observing" and I would add that observing also helps us interpret the significance of interviews. Simply hearing about the importance of hygiene standards in the industry did not assist in my understanding the wide range of hygiene standards found in the industry. Indeed, by touring a variety of abattoirs, I was better able to conceptualize the three networks in South Africa and the difference in hygiene standards between these networks. In addition, observation combined with interviews gave me the opportunity to witness practices in the industry that would not be highlighted if I were simply a visitor receiving a tour of the industry. Field notes were taken on a regular basis and these were entered into the computer and coded.

Documents and Statistics. Finally, documents and statistics on the industry were collected throughout the course of the field research. Documents collected consisted of a wide range of materials including academic articles, industry and government reports, and brochures/advertisements related to businesses. Several documents discussing the meat industry prior to 1994 were collected as a means to gain a historical understanding of the industry (Whyte 1984). In addition, (historical and current) documents lent a certain degree of descriptive validity to this research (Maxwell 2002). As with most qualitative research, there is a concern with capturing an account of what is occurring in the industry as accurately as possible (recognizing of course that there is no one absolute way to depict reality). Through interviews and observations I began to construct an account of the industry. Written documents on the industry further supported several

aspects of my account. In addition, documents helped raise new and interesting insights into the industry that I had not previously considered.

Curiously, I managed to obtain several documents that are marked "strictly confidential" and/or "not to be cited." The fact that I have several documents with these phrases typed on the cover page lends further validity to the point that the industry is currently undergoing extreme turmoil, which involves a significant degree of politicization. Ironically, most of these documents were obtained through other sources and not directly from the authors. In one case I tried to contact the author, but to no avail. Unfortunately, many of these documents contain a significant amount of insight into the industry, especially the politics of the industry and this information is important. Moreover, because I obtained these documents through a variety of sources, there is irony in the fact that these "confidential" documents are in circulation among non-confidential sources. It is apparent that these documents are a part of the public discourse in the industry, despite the text being marked "confidential." Therefore, I have incorporated some of this material into my dissertation. Obviously, there is an ethical dilemma involved in this decision. I have decided to treat these documents the same way I am treating information gleaned from my interviews. These documents will be kept confidential and when necessary the information will be presented in such a way that no one can recognize the source of the information. Having touched on this ethical dilemma, let me turn to a discussion of ethical considerations in my research.

Ethical Considerations. Qualitative researchers, including feminist scholars, have long recognized the dangers of conducting qualitative research for the participants involved in the study (Miles and Huberman 1994; Stacey 1988). The power dynamic

between researcher and participants is rarely equitable, with the possibility that participants are giving much more of themselves than they are receiving from the study. In addition, there is the added power dynamic of being a U.S. researcher conducting research in a developing nation (Whyte 1984). In an effort to conduct the research for this study in an ethical manner, I operated solely on the basis of informed consent. Every person I interviewed was made aware of what I was doing and it was emphasized that all responses would remain confidential and at any time during or after the interview they could opt to withdraw from the study. In addition, I explained my research to every person I spoke with informally. All information collected remains confidential. Within this dissertation all responses or scenarios described have been modified so as to protect the identity of the person/people involved. Indeed, because the South African industry is not very large, it made it that much more difficult, but also much more important, to ensure confidentiality.

A Final Note

Although the research for this study focused on the entire red meat industry, much of the discussion throughout this dissertation focuses on cattle production and consumption. One reason for the extensive focus on cattle is the dominance of beef in terms of quantities slaughtered and consumed in the red meat industry. For example, per capita consumption of beef was 12.9 kg/per head compared to 3.2 and 2.6 kg/per head for sheep and pigs respectively in 2001 in South Africa (SAMIC 2003). The dominance of the cattle sector emerged while I was conducting fieldwork in terms of the number of

persons I interviewed who were involved with cattle production, processing, or distribution.

Another reason that this work emphasizes the technical details of beef production is due to the social issues surrounding emergent farmers within South Africa. While there are a few initiatives operating to help establish emergent farmers within the pork industry, the costs associated with the intensive pork production system are prohibitive. The beef industry, while moving towards increasing intensive production, is still at a phase in which farmers can enter the business as extensive producers without excessive amounts of capital outlay. Therefore, it is a more likely path to enable emergent farmers to become commercial farmers.

Finally, there is a thriving goat industry, but it is almost entirely in the informal sector (serving primarily Black and Indian consumers). In fact, the total number of goats significantly outnumbers the total number of pigs in South Africa with 6.8 million goats as compared to only 1.5 million pigs in 2001. However, it is estimated that 64 percent of goats are found in the communal areas as opposed to only 20 percent of pigs (SAMIC 2003). There is only one significant effort underway to formalize the goat industry and in large part the U.S has funded it. The fact that the goat business serves primarily non-white South Africans and has not become a formalized industry is not simply coincidence. Rather, the informal goat industry is tightly coupled with the history of South Africa. (This includes land use and segregated housing practices, government agricultural control boards, and status symbols associated with meat.) The goat economy could be the basis for an entire research investigation.

However, technical details do matter. Focusing primarily on the beef industry, including beef production and processing technologies, is different from focusing on the pork and sheep industry. Thus, some points in this work will be specific to beef. However, many broader points will apply to the red meat industry as a whole. The following chapter delves into some of the technical details of product quality and food safety standards within the beef industry. Chapter four explores the role of science, ethics, culture, economics, and politics in two different types of standards: (1) meat tenderness, and (2) hygiene standards, especially at the level of the abattoir. At a broader level Chapter four raises a host of issues surrounding the adoption of standards for the purposes of global trade, which in the case of South Africa may not be the most suitable set of standards for the country's economy and its people.

CHAPTER 4

Global Steaks: Meat Tenderness and Hygiene Standards in Commercial Red Meat Production

In this chapter the role of science, ethics, culture, economics, and politics in standards is examined through an analysis of the "tools of the trade" that are used to achieve product quality and meet food safety standards within the beef industry. Defined broadly, "tools" encompass any industry technology that incorporates a standard or a set of standards to achieve standardized food safety or quality attributes. In particular, the consequences of emphasizing certain types of quality and food safety standards, specifically the production of tender meat and the implementation of hygiene standards are explored. The chapter concludes by raising critical questions surrounding the adoption of standards, which in the case of South Africa may have adverse impacts and deleterious effects for a large segment of the population. This discussion sheds light on the complexity and contradictory tendencies of globalization by focusing on the intricacies of standards and their impacts on actors within a commodity network.

Industrial Meat Production -- Science in Action

Industrial meat production can be thought of as scientific practice. As Clarke and Fujimura (1992, 5) note, agriculture, along with medicine and biology, has focused on "what is life" and more importantly, "how to control life." For the scientific practice of industrial meat production to occur there must be some semblance of continuity and stabilization across time and space. This does not mean that industrial livestock practices are identical, but similarities and continuities can be found in all locations (Clarke and

Fujimura 1992). Standards or sets of standards contribute to the creation of continuity and stabilization in the red meat industry.

By contributing to continuity and stabilization across time and space, tools of the trade can be viewed as immutable mobiles (Latour 1986) within the global meat industry. Immutable mobiles are "things that can travel without withering away ... do not fundamentally alter on the trip . . . can be provided to and interpreted by others . . . and linked to other things" (Clark and Fujimura 1992, 12-13). In other words, standards that are created in one space (e.g., a business, a country, or a region) become mobile by way of their incorporation into "tools" of the industry.

An important point made by scholars of science studies is the recognition that continuity and stabilization are the result of successful efforts to dominate (Clarke and Fujimura 1992, 13). At one extreme, standards and standardization are one means by which to dominate. At the very least, a standard that becomes "the" standard in an industry calls attention to some point of view and silences another (Bowker and Star 2000). Bowker and Star (2000, 5-6) note that this is not inherently a bad thing, but "it is an ethical choice, and as such it is dangerous – not bad, but dangerous;" dangerous because these choices are rarely made by democratic decision-making. Despite their ability to alter power relations, technologies of standards and standardization have generally been ignored by social scientists as an arena of investigation (Busch et al. 1998). Through understanding industrial meat production as scientific practice an analysis of "tools of the trade" translates science, but also ethics, culture, economics, and politics.

In order to understand the impact that standards and standardization can have, four points need to be outlined. First, creators of standards propose standards as objective, but standards are always enacted in specific locations that have their own set of cultural and historical circumstances. Second, standards do not work equally well across time and place. For example, standards that suit the purposes of intensive industrial farming do not automatically suit the needs of agriculture organized in other ways, such as communal farming. Third, the question of who (which individuals or groups) gets to determine what is considered a "good" standard is an important point to consider. Currently standards are constructed within private industry and specific government bodies and thus will likely reflect dominant (or at least the most vocal) social actors' definitions of what a good standard is within these groups. Finally, some standards are unable to directly measure the phenomenon we want measured, and in their place proxy standards are used. These standards may change as other standards are found that more closely measure the desired item or characteristic.

The Quest for Tender Meat

> *SA Grainfed Beef is lean, tender young beef (0-2 teeth) selected according to the strictest A Class age specifications with a specified fat coverage (2, 3, or 4) over the whole carcase to ensure the ultimate eating experience. Technically speaking this means that animals are selected for their lean meat attributes from beef breeds known to produce tender beef.*
>
> -- Excerpt from a brochure advertising South African red meat for export

The quest for tender meat is a curious example of the meshing of ethics, culture, politics, science, and economics. To look at the history and the resources and money that have gone into finding an economical way to produce consistently tender meat at the

point of consumption is to see a set of principles and practices that can often be viewed as innovative and at times counterintuitive. To comprehend the great lengths to which the industry has gone to find consistently tender meat, let us review some of the better known cases of tender meat production.

One of the more common techniques for achieving tender meat is to slaughter the animal while it is very young (as animals age, the muscle gets tougher due to more connective tissue and the connective tissue becomes less soluble). Veal is meat produced from young meat animals. Moreover, the animals are prevented from exercising, thereby developing stronger muscles. Similar to the concept of veal, are Kobe and Matsuzaka cows from Japan (the Japanese locations are the names given to the meat). The tender meat produced is a combination of a certain breed (Wagyu is the breed for Kobe beef) and production standards. Production standards include feeding beer to the cows to help them relax, massaging the animals, and a regimen of minimal exercise for the cow (which some have argued makes the massage a necessity rather than the luxury that humans associate with the concept). The terms Kobe and Matsuzaka are appellations and cannot be used unless the cows were raised in these regions. Wagyu, because it is a breed, can be marketed and sold in other regions of the world. Effectively, veal, Kobe, and Matsuka remain meats marketed to a niche market of consumers who are willing to pay significantly higher prices for these meats.

A more common technique used throughout the industrialized red meat industry for increasing tender meat is "aging." Generally, immediately after an animal dies rigor mortis sets in and the meat actually becomes tougher within the next 6 to 12 hours. After this period the meat begins to become more tender. Depending on the breed, conditions

at point of slaughter and post-mortem, an animal can be "aged" from anywhere from 1 to 21 days. The average length of time for aging in the United States is 7 days and in South Africa the length of time for aging generally ranges from 0 to 5 days. The older the animal the more aging improves the tenderness of the meat, up to a certain point.

An offshoot of the belief in the value of aging meat is a recent cloning experiment conducted by U.S. scientists. In 2002, scientists at a United States university in collaboration with a private agricultural biotechnology company successfully cloned a cow from a two-day old side of beef. According to the newspaper report this means "cattle producers could choose beef cells from a slaughtered cow after its meat has been graded, then create a herd of grade A clones" (Bacon, USA Today 2002). Of course, genetic appeals obfuscate the many intervening variables that produce tender meat for the consumer. There variables include: age, sex of the animal, breeds suitability of the production location, feeding regime, transportation to slaughterhouse, conditions at point of slaughter, post-mortem handling, and cooking methods.

Finally, the technology most commonly used in slaughterhouses for promoting tender meat is electrical stimulation (E.S.). Recognized by many as first used by Benjamin Franklin in 1749 on a turkey, E.S. has been increasingly used in industrial slaughterhouses since 1976. During the slaughter process a cable is attached to the animal carcass and an electrical current is sent through the carcass, causing the muscles to contract involuntarily. Not only are there competing theories as to why E.S. works, but there are also different types of E.S. available (e.g., high voltage versus low voltage) and different points in the slaughter process where it is used (e.g., pre-hide removal in the bleeding area versus after dehiding, but before evisceration). E.S. combined with aging

is considered the most efficient means of achieving tender meat in an industrial setting (Stiffler et al. 1982). Generally, these two practices combined produce tender meat more quickly which reduces inventory costs of keeping carcasses for extended periods of time, prevents shrinkage, and reduces energy use.[49] Although E.S. was first used to improve tenderness, its adoption by the meat industry in the United States likely resulted from findings which demonstrated that E.S. improves lean quality characteristics (Stiffler et al. 1982). As the United States has shifted to producing leaner carcasses, the lean carcasses are more prone to cold shortening.[50] Thus, E.S. helps prevent cold-shortening in lean carcasses thereby preventing lean meat from becoming extremely tough. Similarly, in South Africa, they slaughter livestock at a younger age and lighter weight than in the U.S. One South African processor states that E.S. is widely used because the smaller, leaner carcasses are more prone to cold shortening during chilling than larger carcasses with more fat. Therefore, in order to counter toughening of the product, E.S. is used.

Prior to the widespread implementation of electrical stimulation, a processor that was explicitly concerned with producing tender meat would utilize slow chilling techniques. However, slow chilling requires a large number of chillers (i.e., large refrigerators), resulting in more capital (cost of facilities) and increased working capital (costs associated with storing more meat prior to sale). In addition, slow chilling allows more bacteria to grow on the surface of the carcass than does fast chilling. For consumption purposes, an increased level of surface bacteria is not as much of a concern because cooking the meat will kill the bacteria. However, as meat is shipped longer

[49] As meat ages it loses weight, which means if you are selling a product based on weight, you are effectively losing money.

[50] Cold shortening occurs when muscle fibers shorten during rigor mortis due to cold temperature producing tough muscle fiber. This tough muscle fiber is very difficult to break down, even through cooking.

distances surface bacteria shortens the shelf life of meat and thus, increases the risk of meat spoiling while in transport to the final destination. Hence as red meat commodity chains grow longer, the slow chilling technique is ill suited to the changing circumstances.

Similar to participants in the United States and other red meat producing countries, South Africans involved in the commercial red meat industry are very interested in producing tender meat for consumption. What is the purpose of the quest for tender meat? In order to capture the complexity of the answer to this question it is necessary to study the actors involved with and shaped by the quest for tender meat.

For producers, the South African grading system rewards those who bring relatively young cows to slaughter. This grading system is an example of a proxy standard, in that the age of the cow is only used as an imprecise measure of the tenderness of the meat.[51] Studies have shown that the younger the cow the more tender the meat (Crosley, et al. 1994). As noted earlier, there are many variables that contribute to tender meat and age as a proxy does not guarantee the consumer will get a tender piece of meat. However, younger animals at the point of slaughter do generally increase the odds of tender meat at the point of consumption. Thus, South Africa's grading system favors producers who raise animals in feedlots as opposed to grazing systems. This is because livestock raised on grazing systems are generally older at the time of slaughter and have developed tougher muscles.

[51] The U.S. grading system also relies on proxy standards. One USDA web site explains "The quality grade factors, marbling and maturity, used to determine USDA beef quality grades (Prime, Choice, Select, etc.) do not explain all of the variation in beef palatability. However, they are capable of segregating a large dissimilar population of beef into more similar grade classes" (Morris 1999).

The quest for tender meat also impacts cattle. Breeds of livestock are often selected, at least in part, based on the environment in which the animals are reared and the end purpose of the meat. Thus, native breeds in South Africa, such as the Nguni are excellent for less organized grazing systems where "nature" is less controlled by humans.[52] Nguni adapt well to harsh conditions and have a high tolerance for parasitic and infectious diseases. However, the Nguni breed is not considered highly productive within intensive livestock conditions, where reproduction, feed, and the environment are regulated in order to promote rapid weight gain. Thus, most commercial producers (intensive or extensive) raise breeds of cattle that are better suited for industrial production that aims to have the animal gain weight quickly and in a consistent manner. In South Africa they use major continental livestock breeds, such as Angus and Simmentaler. Also utilized are Bonsmaras, a beef breed developed after WWII by cross breeding an indigenous breed with British breeds so that livestock farmers would have a breed that could produce beef economically in the subtropical savannah regions of South Africa (Campher 1998; Ramsay et. al 1994).

For abattoirs the technology used tends to be dependent on the size of the abattoir. High levels of technology are not cost effective in a smaller abattoir that slaughters fewer animals per week. For example, an abattoir that slaughters only 75 cattle a week is less likely to have the types of slaughter equipment found in abattoirs that slaughter 600 cattle or more a week.[53] Thus, small abattoirs tend to be more labor intensive and they are not

[52] Nguni actually originated in Northern Africa more than 8000 years ago. They most likely arrived in Southern Africa around 800 A.D. Compared to breeds introduced to South Africa in the twentieth century, Nguni is considered an indigenous breed.

[53] By international standards an abattoir that only slaughters 600 cattle a week is considered very small.

likely to use E.S. as part of the slaughter process. Thus, whatever benefits E.S. bestows on the meat, cattle slaughtered in smaller facilities will not have these characteristics.

As a side note, it is important to note that E.S. is not an automated system, even in abattoirs where E.S. is available. Rather the E.S. process requires workers to physically attach the wire to each cow that passes through the slaughter line and for the wire to then be physically removed, usually by another worker, after a certain period of time (approximately 10 to 14 seconds). Hence, E.S. entails properly trained workers who attach the wire at the proper time and who leave the wire attached for a discrete period of time.[54] The reason for raising this point is because unlike other industrial processes such as the automotive industry which have tried to minimize the human factor (e.g., human error) through increased automation in its production process, the abattoir is still highly labor dependent, regardless of its size. The labor-intensive aspect of the industry is due to the variability in size of the animals, which thus far has not allowed for fully automated lines. One interviewee in this study told a story of visiting one of the largest abattoirs in a particular region in South Africa where he witnessed every third or forth carcass going through the line without an E.S. wire attached. This person found a worker on the floor and asked why some carcasses were without the wire, to which the worker replied that they were running short on wires that day. Obviously the worker failed to understand or to care about the purpose of attaching the E.S. wire.

In general, abattoirs are increasingly under pressure from larger retailers to introduce new technological devices that promote more tender meat. One research report

[54] Most abattoirs control the amount of time the wire is attached by the actual structure of the slaughter line. In other words, the slaughterhouses where I witnessed E.S. being used prior to hide removal have a bleeding area that is inaccessible to workers without a significant amount of effort on the part of the worker. Once the animal has exited the bleeding area, the worker can easily remove the wire and the hide removal process begins.

from Ireland states, "[l]eading supermarkets already issue detailed specifications to abattoirs and some specify tenderising processes such as electrical stimulation, pelvic suspension and ageing times up to 4 weeks in chill" (Troy and Joseph 2001). Retailers make up a diverse group in South Africa and include butchers, small independent retail stores, fast food and restaurant establishments, and large retail supermarkets. Retailers may have a variety of goals when selling meat to customers, including low price, large quantity, fresh product, or tender meat. However, regardless of the goals it should be recognized that meat classification, with A as the highest-grade meat and C as the lowest, is directly coupled to the price that the consumer is going to pay. Therefore, any retailer who is selling higher grade, and therefore higher priced meat, wants the consumer to feel they have gotten the appropriate value for their money. This is especially true among the large retail chains that are selling their store name along with the meat they sell. Thus, retailers are concerned with how to ensure the consistent meat quality that the customers have come to expect. A few strategies that the largest retail chains might pursue include labeling or branding and offering in-store cooking instructions. The largest retail chains in South Africa are attempting to brand their product, including consolidation and centralization of operations, thereby ensuring more control over the entire process. As mentioned in the previous discussion about abattoirs, increased control for a large retail chain involves the store hand picking select abattoirs that they can trust to provide them the types of carcasses they request. The retail chains also conduct more of the meat preparation in house (e.g., deboning of the meat, packing specific cuts into family size prepackaged containers, and producing sausages). Of course, the centralization and

increasing control also costs more, so stores that take branding to this extreme often charge higher prices for their meats than other retail stores.

Finally, there are consumers who are supposedly the persons driving the demand for tender meat. Curiously, tastes vary and change and are generally inconsistent across ethnic groups and regions of the world. In addition, taste is ambiguous and flavor is largely a learned reaction (Fiddes 1991). In South Africa, meat preferences fall along racial and class lines due to the historical and socio-political economic context of South Africa. As such, there is a noticeable split in the population over what is considered a "good" piece of meat. Generally, urban populations prefer tender meat. Historically, the majority of the white population of South Africa lived in urban centers. The rural populations, primarily black South Africans, tend to prefer meat that is tougher and on the bone. The grading scheme within South Africa privileges tender meat (A grade) over tougher meat (C grade). One interviewee concerned with the structure of the grading system as disadvantaging non-feedlot producers said, "rural people like B and C graded meat, yet producers get penalized for producing what rural consumers want. Why should a British, urban elite determine the grading system for everyone?"

If it is understood that continuity and stabilization are the result of successful efforts to dominate, then seemingly mundane ideas about what is considered "the best" meat can elucidate much larger processes of domination and subordination. The grading system rewards industrial livestock producers and the production of cattle that is favored by a select group of upper to middle-class consumers.

The grading system also reveals the international process of dominance and subordination. Historically, the need for methods of carcass description arose primarily

from the lengthening of the distribution chains and the decline in face-to-face interaction. Carcass descriptions were introduced to facilitate trade at a distance, but these descriptions quickly took on promotional significance (Kempster et al. 1982). The promotional significance of tender meat as equivalent to good meat on a global scale is illustrated by the use of E.S. during processing in several exporting countries in the South. For example, in Brazil -- one of the largest exporters of red meat globally -- thirty percent of medium-size and forty percent of large-size plants use E.S. Significantly smaller participants in international beef trade include Costa Rica and Venezuela. Nonetheless, all three of the export slaughterhouses in Costa Rica utilize E.S., while six out of eighteen export slaughterhouses in Venezuela utilize E.S. (personal communication). The use of E.S. in slaughterhouses in countries in the South partially supports Goodman and Redclift's (1991, 157) point of recognizing trends that move beyond the nation state policies and brings attention to the "catalytic role of the transnational corporation in disseminating standardized technologies and labor processes and integrating commodity markets on a global basis." However, in contradiction to Goodman and Redclift's point, there is no one corporation that controls the red meat industry. Rather, red meat production continues to be organized within nation-states. Despite a lack of unified corporate control globally, this does not mean that the global influence of a few powerful actors within nation states (primarily Western, industrialized countries, especially the United States) can be dismissed.

In order to explain the means by which a few actors can structure an industry it is important to understand the process of livestock production. The scientific practice of livestock production requires standards and standardization throughout the process, not

just at the end point. The following quote, taken from a report prepared by a processor in the industry, reveals the extent that beef production is a process, whereby scientific practices are always emphasized.

> After slaughter we receive from the slaughterhouse the individual animal's number as well as the grade, the weight, the disease status if any as well as the selling price of the individual animal. This information would once again be entered into the computer and as all the cattle from the original lot that were purchased are sold, so the computer would reconstruct the original group of cattle coming from the particular cow calf producer and thus build up a trace record for that particular breeder. As part of the service offered to the cow calf producer, on his request we would send him a copy of the performance results of his cattle. We have seen great improvements amongst those breeders that have consistently asked for this information and used it to formulate their breeding programmes. Our consultant also uses this information when advising breeders on their choice of breeding stock. We use this cattle performance for the individual breeder as a means to calculate the value of his livestock when we are offered his calves for sale at a future date (confidential report).

From the above quote it can be seen that if a radical change occurred in the grading system of South Africa, it would require a reorganization of the whole process. To reorganize the system would effectively alienate South Africa from international trade. Recall that differences are found across locations in scientific practices. This is true in the case of national grading schemes. South Africa bases its quality grading system primarily on age by dentition (i.e., the number of permanent incisors – A grade is 0 permanent incisors) and carcass fat cover. In contrast, the United States bases its system primarily on maturity established through visual inspection of the carcass (such as the amount of hardening of cartilage into bone) and visual analyses of marbling in the rib eye muscle between the 12th and 13th rib. However, both systems operate because there is some semblance of continuity and stability in determining palatability.

Like most agricultural industries, South Africa's industry has a strong interest in maintaining export options. As one South African report states, "The future growth opportunity for the local beef industry lies in entering the international market, and in doing so, we will have to comply with the standards as set by the particular importing country" (confidential report). Aside from obtaining much stronger currencies, South African producers/processors aim to sell higher end cuts elsewhere and import lower end cuts for the majority of the population that do not have enough income to pay for higher priced pieces of meat.[55] This is one way to maximize the earning potential of producers and processors, and simultaneously reduce the costs of meat for the general population. However, at present, the majority of South African producers are only producing for the domestic market, yet they are still following this export model. Following this logic, the current organization of the industry does not benefit the majority of South African consumers.

While specific standards have very real material consequences, the issue of specific standards designed to produce tender meat might not appear as something which maintains or enforces power differentials. However, as Bowker and Star (2000, 6) note "for any group or situation, classifications and standards give advantage or they give suffering. Some regions benefit at the expense of others." Quality standards that emphasize tender meat have negative consequences for at least some of the South African actors discussed previously.

First, for extensive livestock producers, the grading system favors young animals that are finished (i.e., prepared for slaughter) much more quickly than animals in grazing

[55] Many countries pursue the practice of exporting higher quality meat and importing lower quality meat, including the United States.

production systems. Therefore, most extensive producers receive a lower price for their animals at the point of slaughter or they opt to provide the input (weaner calves) to intensive livestock producers, losing their ability to capture more profit by raising the animal until at least the point of slaughter.[56] Accompanying the disadvantaged position of extensive producers is the reality that the majority of emergent farmers in South Africa will be extensive producers. Emergent farmers generally denote previously disenfranchised groups, which for the most part in agriculture consist of black South Africans. Therefore, an emphasis on quality standards that promote intensive livestock production in South Africa is counter to the government's initiatives to promote the advancement of emergent farmers. Of course, there are some initiatives underway (private, public, and not for profit) that are attempting to cultivate and promote extensive production for a niche market audience. While offering a wide range of reasons for extensive production, these niche markets generally promote the product based on claims associated with the environment, health or the ethical treatment of animals. The success of these initiatives remains uncertain, especially in terms of giving emergent farmers access to markets for selling the meat they produce.

Second, the emphasis on tender meat leads to a loss of genetic diversity among livestock. Industrial livestock production relies on a limited number of highly productive breeds (LEAD 1999). Currently, the FAO predicts that out of approximately 4,500 known breeds globally 30 percent are in danger of extinction (FAO 1993). This means valuable genetic diversity is increasingly lost, including animals that are better equipped to resist certain types of parasites or diseases. Finally, South Africa is a country where

[56] Most extensive producers actually engage in a combination of practices, which includes selling calves to intensive producers and sending some animals to slaughter.

only 16.8 percent of rural residents have running water inside a dwelling (May et al. 2000) and the privatization of water services has caused severe water shortages among the poor (Thompson 2003). Yet, South African livestock production is dominated by an intensive production system which uses more water than any other intensive agricultural product (Harper and Beau 2003).[57] While there is no direct link between the water used for intensive livestock production and water shortages among the poor, it is worthwhile noting that cows are able to drink potable water while poor citizens of South Africa go without.

Abattoir owners who do not have the available E.S. technology in their plants are the next group of actors that will indirectly and directly experience negative consequences from the quest for tender meat. Indirectly, this is because the majority of abattoirs that do not use E.S. are small in size, and as the industry continues to move towards vertical integration and concentration, smaller abattoirs will be forced out of business. Directly, larger retail chains will increasingly expect abattoirs to utilize technology like E.S., that enhances the consistency of the final product. Furthermore, the majority of smaller abattoirs service rural areas that are not regularly serviced by other larger abattoirs. If supermarkets continue the trend of increasing the number of stores in rural areas of Southern Africa (Weatherspoon and Reardon 2003), it is likely that meat coming from larger abattoirs will flow into the area via trucks delivering to rural supermarkets. The decline of smaller abattoirs in rural areas is important in the context of South Africa because of the high poverty and unemployment rates in these areas. The poverty rate in rural areas is about 70 percent (May et al. 2000) with approximately 58

[57] For example, 100,000 liters of water for every kilogram of beef produced (cited in Harper and Beau 2003)

percent of rural inhabitants currently unemployed (Tørres et al. 2000). Smaller rural abattoirs provide employment for rural inhabitants. In addition, smaller rural abattoirs provide a source of income because the animals slaughtered are purchased from local producers, thus reducing the costs of transportation should these producers have to send their livestock to an abattoir located further away.

Linked to the decline of smaller abattoirs are retailers, especially smaller retailers, who tend to receive their products from small abattoirs. However, small retailers have many more options for how they can obtain red meat products; thus the decline of this sector will not be as dramatic as in the abattoir sector. First, despite the increased costs of transport, it is possible that the carcasses coming from large abattoirs will decline in price due to economies of scale (i.e., more carcasses moving through one abattoir leads to a decline in the price per carcass). Second, creative retailers may work out alternative arrangements for acquiring meat, such as partnering with other independent butchers or selling more specialty items, such as cheaper imported meats or specialty sausages. Third, it seems likely that the majority of retailers in South Africa will increasingly serve a specific clientele. Thus, specific retailers will increasingly only serve the upper-middle class consumers, while others will serve the working class. By serving specific clientele, retailers will be better able to control overhead costs based on how much their customers are willing to pay for their product. In other words, market segmentation will occur. Market segmentation means retailers serving upper-middle class customers will be able to charge a higher price for their meats thereby recouping costs associated with maintaining more rigorous standards and providing higher end meats. Within each segment of the market competition for customers will be very high; thus small retailers

will experience difficulty staying in business as they compete for the same consumers with larger retailers who have economies of scale.

The adoption of standards shaped by international markets impacts the food preferences of consumers. Despite a large portion of the South African population preferring tougher meat, they will increasingly get more tender meat. This is because as smaller abattoirs decline and as more of the rural poor migrate to urban centers,[58] much of the meat obtained by these consumers will be from animals slaughtered in large abattoirs that use E.S. Poorer consumers will still buy the cheapest meat, which is B or C grade, but all of the grades will have gone through E.S., thereby increasing meat tenderness. Overtime, this will likely change meat tenderness preferences. This lends more evidence to support Goodman and Redclift's (1994) point that urban food systems in developing countries are increasingly Westernized.

As stated previously, the entire industrial meat production process favors Western, industrialized consumers. While we should avoid romanticizing the more traditional approaches to meat production in third world countries, there is a paradox to the current situation. There are an increasing number of consumers in the E.U. and the U.S. that seek 'all natural beef' that does not originate from modern industrial livestock production.[59] 'All natural' beef is the type of product that is in abundance in Third World countries. However, this type of beef is largely found in the informal sector and is increasingly being pushed out as a viable means of production by intensive livestock production that is striving to export to Western, industrialized markets. Thus, one

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[58] Due to high unemployment and poverty rates in rural areas many people migrate to urban centers in search of work (see Posel 2003 for a discussion of migration).

[59] While many U.S. and E.U. consumers want "all natural" beef, they often want a combination of characteristics that originate from all natural productions (e.g., meat with flavor not found from corn-feed beef) and industrial production (e.g., meat tenderness and consistent quality).

strategy used for marketing meat from the informal sector would be to advertise it as "all natural." However, before meat from informal sectors can be marketed in the formal sector there are several additional hygiene and food safety standards that must be dealt with, including animal disease control.

Up until now the discussion has focused on quality grades that generally only require "voluntary" compliance in most countries including South Africa. But what about standards that are required by law in some countries, tend to promote global discussions, and deal with potentially serious health concerns? In the next section I turn to a discussion of food safety standards. Specifically, I look at HACCP (Hazard Analysis Critical Control Points) as an illustrative example of a food safety standard that is globally significant.

The Importance of Hygiene

> *SA Grainfed Beef originates from abattoirs maintaining high standards of hygiene and classification. The application of the HACCP system is an integral part of the meat hygiene standards of these abattoirs.*
>
> -- Excerpt from a brochure advertising South African red meat for export

HACCP is an example of a set of widely adopted food safety standards that has a significant impact on meat markets around the globe. Within the context of South Africa the case of HACCP illustrates another way in which local networks become global. HACCP has been described as a tool that can be used by firms as a means to reduce food safety hazards, thus ensuring safer food products. In this section HACCP is described as an obligatory passage point for all participants in international meat trade and for several

participants in South Africa's red meat industry. Callon (1986) has described obligatory passage points as the points that all members must pass through or participate in, in order to be counted as part of the network. Obligatory passage points can be viewed as loci of power because they discipline the interactions of actors. Before moving on to discuss the consequences of HACCP as an obligatory passage point for South Africa, I provide an overview HACCP and its use by various countries in more detail.

As mentioned in Chapter 2, HACCP is a food safety management system whereby meat plants identify "critical control points" where contamination is most likely to occur. Performance standards and monitoring procedures for each of these points are then established. Specifically, HACCP is based on seven principles. These are:

1. Conduct a hazard analysis;
2. Identify critical control points;
3. Establish critical limits for each critical control point;
4. Establish critical control point monitoring requirements;
5. Establish corrective actions;
6. Establish record-keeping procedures; and
7. Establish procedures for verifying the HACCP system is working as intended.

HACCP was initially developed in the U.S. to ensure the integrity of food products for astronauts while in space. NASA looked at the issue of food safety as an engineering issue, where possible points of contamination at which a germ or pathogen could enter the food had to be identified and controlled. In the 1990s, the U.S. Department of Agriculture adapted HACCP for use in the meat industry as a more science-based approach to meat inspection. Prior to HACCP, meat inspectors solely relied on the 'poke and sniff' method for detecting unsafe meat (i.e., the use of the senses to detect unsafe meat). Utilizing HACCP means that meat plants and the USDA now test for pathogens (e.g., *E. coli* and *Salmonella*) that are not visible to the unaided human eye.

Today, most meat trading western industrialized countries, including the U.S., Canada, the United Kingdom, Australia, New Zealand, and soon the E.U., make use of a HACCP-based system in meat processing plants. In large part this is due to each country's ability to block imports of products from other countries that do not have the same level of standards in place.[60] The U.S. beef industry has long been considered very powerful globally. Spriggs and Isaac (2001, 109) write, "Because of the dominance of the U.S. market and the lack of standards in other countries, the U.S. standards became the de facto international standards. Thus, if exports met U.S. standards, these were also sufficient for exports to other countries." With the introduction of HACCP in the U.S. many other countries that intended to continue exporting to the U.S. also adopted HACCP systems. For trading purposes the W.T.O. has ruled that a country cannot ban another country's products simply because the country does not have the exact same HACCP standards in place. Rather, other countries can gain the right to trade with a country that uses HACCP if they can prove that their standards, procedures, and/or systems are equivalent. The data in Figure 4.1 evaluates four countries that have implemented HACCP systems. As a point of comparison South Africa, which has only a few industry participants utilizing a HACCP system, is also listed on Figure 4.1.

The column in the figure labeled "National Driver(s)" details which factors, according to Spriggs and Isaac (2001), have pushed or encouraged the adoption of HACCP in each country. Note the section header for the second column is 'national' drivers, as opposed to international drivers. International drivers are beef market megatrends that are shaping numerous developed countries' food safety programs. International drivers originate from several sources, including the globalization of the

[60] However, these standards must be based in science.

Figure 4.1 Comparison of HACCP Implementation Between Five Countries[1]

COUNTRY	**NATIONAL DRIVER(S)**	***HACCP COMPLIANCE*** ***(Sector Advocating HACCP Implementation.)***	**FOCUS OF HACCP/ TRACEABILITY**	**SECTOR WITH RIGOROUS APPLICATION OF STANDARDS (includes HACCP)**
United States	Internal: Food safety scares – loss of consumer confidence	Required by law – all processing plants *(Government Led)*	Slaughterhouse/None	All Processing Plants – Domestic and International
Canada	External: Access to major export market (U.S.)	Voluntary *(Industry Led)*	Slaughterhouse/None	Export Processing Plants
United Kingdom	Internal: Food safety crisis – loss of consumer confidence. External: Comply with EU mandates	Voluntary *(Industry Led)*	Entire Commodity Chain/Entire	Entire Chain – Producers, Processing Plants, Retailers
Australia	Internal: Series of food safety scares – loss of consumer confidence External: Access to major export markets; Past problems with exported meats; Pursued innovation of food safety system using 'Equivalency' clause in SPS Agreement.	Required by law in domestic processing plants. Voluntary in Export processing plants. *(Co-Regulation -- Government & Industry Led)*	Slaughterhouse/Partial	Export Processing Plants
South Africa	External: Access to major export markets	Voluntary *(Unknown – most likely industry led in the future)*	Slaughterhouse/Partial (limited to a few actors)	Export Plants

[1] Information in this chart obtained from Spriggs and Isaac (2001), with the exception of South Africa.

media, global transport of food, and international institutions, like the W.T.O. and Codex. Spriggs and Isaac (2001, 7) argue that international drivers for change in food safety have a harmonizing effect on the food safety systems in different countries and cause domestic rules to converge, whereas, national drivers "tend to have a differentiating effect, causing divergence of domestic rules" between countries.

National drivers are specific to individual countries and can be further divided into external and internal national drivers.[62] External drivers are linked to changes made by other countries or related to international issues, but the impact is experienced by only one country (as opposed to several countries as is the case for international drivers). An example of a national external driver is when another country adopts HACCP. If a country is dependent for export markets on the country that adopts HACCP, then the exporting country is driven to adopt HACCP (or an equivalent system) in order to maintain market access. Looking at Figure 4.1, one can see that this is what happened in the case of Canada and Australia. This is the situation that South Africa is now facing.

Internal drivers are events that occur internal to the country which encourage change in the national food safety system. A common internal driver of change is a food safety scare, such as hamburgers that are contaminated with *E. coli* 0157:H7. For example, the United States had a series of food safety scares that encouraged the adoption of new food safety standards (e.g., the 1993 Jack in the Box *E.coli* outbreak). Australia and the United Kingdom are two countries that had both external and internal drivers of change to their food safety systems. In the case of Australia, there is a high dependency

[62] For illustrative purposes this section adopts the language "internal and external drivers" utilized by Spriggs and Isaac (2001). The internal/external dichotomy does not fit well within ANT. Rather utilizing ANT Spriggs and Isaac's argument could be conceptualized in terms of network effects. In other words, within an ANT approach when and why each actor adopts HACCP is determined by the relationship between the different actors in a network.

on exporting beef products and a series of food safety scares in the country led to a loss of consumer confidence in the safety of beef products. Thus, Australia dramatically altered its food safety system, which included requiring HACCP implementation in all domestic plants. Ultimately, all countries have both internal and external national drivers, but in some countries the external driver has significantly more of an impact on the adoption of food safety standards than the internal drivers, or vice versa.

As the largest producer and consumer of beef, the United States is not concerned with equivalency issues in the same way that other countries are.[63] On the other hand, Canada and Australia provide two interesting case studies of countries that adopted HACCP for the purposes of achieving equivalency with an importing country. For example, United States' beef exports were only 9 percent of total U.S. beef produced in 2000, while Canada exported 45 percent and Australia exported 62 percent of their nations' beef production in the same year (Spriggs and Isaac 2001).

In the case of Canada, the industry adopted HACCP with the goal of obtaining equivalency with the United States. Canada ships approximately 80 percent of all its beef exports to the United States and Canada's live cattle trade is almost entirely with the U.S. (Spriggs and Isaac 2001). Thus, as the U.S. began restructuring its food safety system in the 1990s, Canada's meat industry needed to ensure market access and industry competitiveness. It accomplished this by restructuring to at least attain equivalency with the new U.S. system. Spriggs and Isaac (2001) argue that because the changes that Canada introduced are so dependent on U.S. food safety changes, Canada never

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[63] Article 4.1 states that "Members shall accept the sanitary or phytosanitary measures of other Members as equivalent, even if these measures differ from their own or from those used by other Members trading in the same product, if the exporting Member objectively demonstrates to the importing Member that its measures achieve the importing Member's appropriate level of sanitary or phytosanitary protection" (W.T.O. 1999).

effectively overhauled the entire food governance structure (much as the U.S. failed to thoroughly overhaul its food governance structure).

Australia, on the other hand, has completely redesigned its food governance structures and likewise its food safety procedures. Similar to Canada, the main destination of Australia's beef exports is the United States. Throughout the 1960s and 1970s Australia relied extensively on exporting to the U.S. and therefore it "bent over backwards" to comply with U.S. standards (Spriggs and Isaac 2001, 109). Recall that Australia actually had external and internal drivers that promoted change in its food safety systems. Beginning in the 1980s Australia experienced a series of events, including a loss of exports to the U.S. due to processing plants deemed inferior to U.S. standards, a series of national food safety scares, and government policies that adopted economic rationalism.[64] Ultimately, Australia developed HACCP systems and adopted a whole series of other changes in order to gain a competitive advantage in international trade. Using HACCP and food safety systems as a competitive advantage required Australia to employ the equivalency rule as established by the W.T.O. (*Ibid*). Importantly, it should be noted that HACCP, as adopted and promoted by the United States government and industry and furthered by countries like Australia, conveniently fits within a neo-liberal market model in which self-regulation is emphasized and thus contributes to minimizing and privatizing regulation of capital-accumulating enterprises (Juska et al. 2003).

The point of highlighting the drivers of HACCP implementation is to call attention to the different position of each country in an international trading network. As

[64] Economic rationalism is opposed to all forms of state intervention in economic life along with the idea that free markets are inherently beneficial (Pusey 1991).

an obligatory passage point HACCP requires that each country pass through this node in the network. However, each country arrives at this node through a series of different networks, with some countries bound up in larger networks that expand across greater distances and enroll more actors into their networks than others. In international trading, South Africa is bound up in more local networks than the four countries discussed previously. In addition, because South Africa has not yet implemented HACCP, there are actually two distinct issues related to HACCP as an obligatory passage point. The first is similar to the issue dealt with by some Western industrialized countries just discussed. South Africa is aware of the need to adopt HACCP in order to export meat to Western industrialized countries. However, unlike the other countries South Africa is also made aware of HACCP because under the W.T.O. trade rules, South Africa cannot require that meat being imported into the country be HACCP compliant unless domestically it also uses HACCP systems. Thus, South Africa must implement a standard or set of standards domestically before it can require that products from other countries meet these standards.

In order to better understand the impact of HACCP on actors in South Africa, I review in more detail some of the changes that are occurring there. South Africa is situated in the only region of the world not expected to see an increase in per capita meat consumption over the next decade.[65] Thus, if South Africa's red meat industry is going to pursue growth, government and industry actors must recognize the need to adopt HACCP (or an equivalent system) for the purposes of international trade. One report states that, "[t]he USA is by far the most untapped export market from a South African

[65] The market will expand as the population increases. However, this growth will not be for higher end/higher priced cuts of meat.

red meat perspective. . . . however, one of the biggest stumbling blocks at this stage is equivalency" (NAMIC 2001).

The issue of equivalency was brought to the forefront when South African government officials contacted the U.S. in order to begin the initial process of trying to obtain equivalency. The inquiry by SA officials was answered with a cover letter explaining that equivalency would be evaluated by the U.S. Food Safety Inspection Service (FSIS) once South Africa had responded to five questionnaires and provided documentation that South Africa had implemented requirements of the Pathogen Reduction/HACCP Systems final rule.[66] The questionnaires ultimately proved to be unanswerable in South Africa's current situation. For example, the very first question on the first questionnaire entitled "Residue Control Program" asks: "What are the total food animal population figures for your country for each species and subspecies that is exported to the United States?" Estimates to this question are possible, but because of South Africa's large informal sector, the exact number of cattle in South Africa is unknown. As one interviewee explained, South Africa does not currently have programs required by the U.S. (e.g., residue monitoring) in place and South Africa does not have the resources to put them in place. In addition, the five questionnaires ask questions that deal with issues well beyond equivalency for one product or one sector. For example, in order to obtain equivalency for red meat exports, there are a series of questions that ask about crop production.[67]

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[66] The "final rule" requires all domestic U.S. establishments to implement Sanitation Standards Operating Procedures (SSOP) and all domestic plants that slaughter cattle, swine, or poultry must test for generic *Escherichia* (*E.coli*).

[67] These questions focus on pesticide residues on crops, which could potentially end up in animal feed, thereby producing trace amounts of the pesticide in animal carcasses.

Beyond very real concerns about providing safe meat to the public, hygiene and food safety standards are also politically contentious at the international and national levels. A statement from one confidential report about hygiene standards in the South African industry captures the complexity and the politics surrounding hygiene and food safety debates in South Africa. The report states:

> The debate over the appropriate level of hygiene standards remains a contentious one that belies its seemingly neutral scientific basis. This is because it hides the true reason for hygiene standards, which is not concern for consumer welfare, but a means of exercising control over the market. For example . . . it is used by the formal market to voice concern over the competition provided by informal marketing channels. Aspects of the debate have been couched in neutral terms despite the fact that they represent crucial sites of conflict between very different interests. (Confidential Report)

Historically, all standards for abattoirs in South Africa were extremely rigid, with a specific focus on the structure of the abattoir as opposed to the product. These strict standards fell under the rubric of food safety/hygiene standards. The extreme oversight of the structure of abattoirs was used as a control mechanism that regulated who owned and operated an abattoir. ABACOR, the government controlled company that owned and managed eleven large abattoirs that were built in major cities (see Appendix C), controlled 70 percent of industry slaughters. Farmers were given a permit by the meat control board that allowed them to slaughter a specific number of animals at a specific abattoir. The farmer then had to pay to transport the animals from the farm to whichever city abattoir they were assigned.[68]

Cheit (1990, 12), a scholar writing about safety standards, argues that "there are some anti-competitive [standards], masquerading as safety standards, but there are also

[68] As an aside, this gave unfettered power to control boards who could make life financially difficult for farmers simply by assigning them to an abattoir at the opposite end of the country.

genuine safety standards that, although not necessarily as strict as what government would adopt, certainly benefit the diffuse interests of consumers." Cheit's statement helps to explain how in the past in South Africa standards were couched under the rubric of ensuring public safety, when in reality they were a means to control the industry by those in positions of power. However, Cheit fails to realize that even good safety standards can be highly politicized and occasionally anti-competitive for certain portions of a population. During the initial trip to collect research for this study in 1998, one South African researcher was very aware of the challenge of constructing standards that would not disproportionately effect specific populations. She noted "people can use standards to exclude people, especially small scale farmers. A system needs to be built that will incorporate small-scale farmers, not exclude them" (personal communication 1998).

Today, some South African government and industry personnel recognize at least some of the politics of hygiene standards. Haltingly, the South African government has attempted to implement more flexible hygiene standards in large part to accommodate the informal sector. Part of this process included the initiatives put forth to deregulate the industry. Farmers were no longer assigned to specific abattoirs and guidelines for building and owning an abattoir were relaxed during deregulation.[69] All of these factors combined led to an explosion in the number of operating abattoirs, with a total of 450 abattoirs operating in 2000, as compared to 281 abattoirs in 1990.[70] Of these, only half voluntarily pursue classification, but all are required to have a hygiene inspection. The

[69] The guidelines for operation as specified in the Abattoir Hygiene Act remained in place, although according to individual officials involved with abattoir hygiene many new abattoir owners did not initially understand that the Act still applied.

[70] Lubbe (1992) reveals a much longer history of the increase and decline of abattoirs and the fragmented and sometimes poor hygiene and health standards present in abattoirs.

abattoirs range in size from operations that slaughter one animal per week, to operations that slaughter one-thousand animals per day.

With the increased number of abattoirs, an overall decline in government resources for hygiene inspection, and South Africa's adoption of neo-liberal economic policies, the South African government in cooperation with some industry actors recently introduced HAS (Hygiene Assessment System) to abattoirs. As mentioned in Chapter 2, HAS is a risk based method of assessing hygiene standards as it relates to slaughtered livestock, the people working in the plant, the premises themselves, and any other relevant sources of possible contamination (MAFF 2000). HAS was introduced as the beginning steps towards having the industry become more self-regulating with government only conducting audits of operating abattoirs. In addition, HAS is seen as a means to eliminate the subjectivity of the assessment of hygiene standards in the abattoirs and to standardize the assessment across all regions (personal communication). South African government officials and some industry actors' view HAS as a preliminary step towards improving food safety and hygiene in the industry.

Within South Africa's current context there is a fundamental tension between the desire to maintain small operators (who are least likely to be prepared for HACCP implementation) and the desire to expand export opportunities through the adoption of HACCP. The implementation of HAS can be viewed as a compromise among competing forces. If HACCP is adopted into law and required of all processors, small operators in South Africa will be disproportionately negatively impacted.[71] HACCP is expensive to implement despite the seemingly straightforward seven principles of HACCP systems.

[71] In the United States when HACCP became mandatory of all meat processors the government attempted to offset the burden to small and medium processors by extending the deadline by which the smaller to medium size operations had to achieve compliance.

Larger firms have more capital needed to invest in meeting standards and unlike small to medium processors, large processors do not experience new regulations as a major increase in the cost of production (Dunn, forthcoming). However, as stated previously, South Africa has extra reason to be concerned with not harming small to medium processors. With extreme inequality and severe unemployment in the formal sector, South Africa's government has a vested interest in maintaining small to medium processors. Thus, a "paradigm shift" has been asked of inspectors and the industry.[72]

According to government officials and inspectors, the paradigm shift has involved a shift to a more holistic approach to the meat commodity chain. The shift to a holistic focus can be seen in the name given to the new legislation, the Meat Safety Act of 2000, as opposed to the legislation it replaces entitled the Abattoir Hygiene Act of 1994. A part of this holistic focus is a move away from standards as strictly a pass/fail measure to an acceptance of differences between processors and retailers and the clientele they serve. One inspector labeled it "relative standards" with the explanation that the fast food chain selling R20 million (approximately $2.5 million) should be held accountable for more hygiene and food safety standards (in part, due to the increased complexity of a system set up to feed so many more people) than the individual selling street food earning R 20 (approximately $2.50) a week. In addition, inspectors have been asked to recognize establishments that are always striving to improve within the constraints of the environment in which they operate. As might be expected this paradigm shift has not been an easy accomplishment and the policy has received harsh criticisms of favoritism, especially from processors and retailers who are in full compliance with the law.

[72] Several interviewees, especially people working in the government, used this phrase. Interestingly, it was Kuhn (1962) in *The Structure of Scientific Revolutions* who is generally acknowledged as the person who coined this phrase.

Another example of what has been asked of inspectors can be found in the official red meat inspectors' handbook that states that larger slaughterhouses are to be held accountable for higher (or tougher) requirements. The reason for needing higher requirements in bigger abattoirs is because "higher throughput enlarges the risk of contamination" (NDA 2000, 8). While this statement seems logical, it poses a paradox for South Africa as it strives to become HACCP compliant. As mentioned previously, due to the capital and organizational resources needed for HACCP implementation, there is a tendency for further vertical integration and concentration to occur in an industry as HACCP is adopted.[73] The increased vertical integration ironically contributes to the increased possibility that one small problem (e.g., one carcass contaminated with *E. Coli* 0157:H7), affects a much larger quantity of meat. This brings us to the critiques of HACCP and the consequences of HACCP as an "obligatory passage point" for South Africa.

Juska et al. (2003) call attention to the fact that the actual number of carcasses that have been infected since testing under HACCP guidelines began in the U.S. has declined while the number of human infections traced to *E.coli* 0157: H7 has increased. What this suggests is that rather than there being a problem of too many infected carcasses, the problem appears to be that it only takes one infected carcass to affect a much larger quantity of meat. Currently, one hamburger contains meat from approximately 1000 different carcasses in the United States (Schlosser 2001). Thus, if one carcass is contaminated with E.coli, but it is ground up during mass processing of hamburger meat the contamination spreads to a much larger quantity of meat. Supporting this point is the

[73] Vertical integration and concentration are already underway in South Africa's red meat industry; the implementation of HACCP promotes these structural changes.

increase in the quantity of meat that is recalled each year in the U.S. Since HACCP implementation the largest meat recalls (in tons of meat) in the history of the U.S. have occurred.[74] Juska et al. (2003) maintain HACCP is much more focused on fixing non-human actors like *E. coli* and *Salmonella* as opposed to fixing the "system" which structures non-human *and* human actors in such away that the number of food safety outbreaks has increased. Juska et al. (2003, 15) conclude:

> This solution [of adopting HACCP] is costly and most likely will run small slaughterhouses out of business, [and] is explicitly premised on the belief that "larger firms have better resources to control the environment" . . . . HACCP is likely to contribute to increasing concentration and coordination among and between the largest packers and feeders – thus reproducing the very conditions we believe amplify problems of beef contamination.

Paradoxically, HACCP (or its equivalent), operating as *the* standard that must be adopted by countries and their industries in order to trade internationally, ignores the fact that the current structure of the South African red meat industry is quantitatively and qualitatively different from the structure of the U.S. industry or any other Western industrialized country. The most obvious difference between the U.S. and SA industry is the size of the two industries. Although moving towards vertical integration and concentration in the industry, South Africa is nowhere near the levels of concentration and vertical integration of the U.S. Thus, structurally one infected carcass coming out of a South African abattoir is not likely to impact as large a quantity of meat as is the case in the U.S.[75]

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[74] Nineteen million pounds of beef were recalled on July 19, 2002. This was the second largest beef (third overall if poultry is included) recall in U.S. history (Becker 2002b).

[75] This argument is true as long as South Africa's industry remains primarily domestic. If the industry does increase export production and/or they become more vertically integrated, then the risk of contamination due to one infected carcass becomes greater (i.e., the mass processing of carcasses originating from multiple sources).

Also related to the size of each country's industry is the difference between the U.S.'s and South Africa's slaughter lines in the abattoirs. Even the largest South African abattoirs have line speeds and slaughter volumes that are less than the U.S. A fast line speed encourages the possibility of accidents on the slaughter line, which contributes to contamination of carcasses. A meat packing plant in the U.S. may employ more than 2000 workers and slaughter over 4000 head of cattle per day (Gouveia and Juska 2002). In South Africa the largest slaughterhouses only slaughter 1000 head of cattle per day, with the vast majority of the 450 abattoirs slaughtering anywhere from 0 to 300 head per day.

A third difference between the two industries is the operation of domestic and export networks. In the U.S. the export and domestic beef industry operate in tandem. This is generally the case for most western, industrialized countries, although (referring to Figure 4.1) a few countries have a slightly greater emphasis on their export markets (e.g., Canada and Australia). However, in South Africa, domestic production and export production are at the moment separate (with the exception of a few of the largest feedlots that are producing for both markets). The gulf grows even wider if the informal sector is brought into the discussion. Thus, standards in the U.S. are more or less applied across the entire industry, whereas in South Africa a person would be hard pressed to apply the same standard across all three networks. The questionnaire provided by the U.S. for evaluating South Africa's HACCP system or an equivalent system is in many ways predicated on the idea of agriculture in the country operating within one unified network.

There is a fourth possible difference between South Africa, the U.S., and other Western industrialized livestock operations that needs to be further investigated and that

is biological and zoological differences. The case of South Africa is potentially very similar to the case of Poland adopting international standards. Dunn (forthcoming) remarks that in Poland the high levels of poverty and fragmentation of the farming system substantially reduce the risk of many of the diseases that plague the commercial, industrial livestock sector in Western industrialized countries, such as BSE and FMD. This is due to the fact that the points where contamination could occur are much more fragmented. For example in the case of FMD, an infected cow that stays out in the field by itself never has the opportunity to infect another cloven-hoofed animal. In South Africa FMD does occur and it does spread; however, it has been suggested that the way it spreads might be different from FMD cases in the UK or other parts of Europe possibly due to differences in weather, animal confinement, or some other unknown factors (personal communication). Obviously, more tests need to be done to further understand these points.

Finally, there is a difference between consumers in Western industrialized countries and in South Africa. In South Africa, the average family spends approximately 31 percent of its income on food, with 40 percent of the population spending over 57 percent of its income on food (May et al. 2000). In the United States, the average amount of family income that is spent on food is approximately 10 percent. This implies a significant difference in the amount that consumers are able to pay for food. The implementation and maintenance of HACCP standards costs money. Several South Africans commented that high costs are associated with HACCP implementation with very little return in the short term. These high costs must be borne by someone within

agri-food systems, and due to the economic situation of the majority of South Africans, it is not likely to be consumers who are able to offset the costs associated with HACCP.

However, for all of the differences, there are points where the U.S. and South African industries converge and these points are not "fixed" by HACCP. Similar to the U.S., there are poor labor relations between management and workers in the abattoirs and processing plants in South Africa. In addition, pay is very low. Both of these factors contribute to high turnover rates among all workers, including managers. With such high turnover line workers and management tend to be poorly trained. As long as abattoirs remain labor intensive, abattoir personnel are key participants in maintaining hygiene and food safety standards in the abattoirs.[76]

Ultimately, in order to comply with HACCP South Africa's industry must change its structure. Thus, standards that are designed to suit specific purposes actually can contribute to changing structures to make them better "fit" the standard. This discussion has sought to reveal that, as South Africa continues towards HACCP adoption, there are specific actors in South Africa's network who will suffer negative consequences, including smaller processors and poorer consumers who are overwhelmingly black South Africans. Dunn's conclusions about Poland's adoption of international standards should be considered in the case of South Africa. Dunn (forthcoming, 21) writes that, "in the rhetoric of standards, the risk that Poland's [and South Africa's] current SPS pose to consumers and animal health is overestimated. At the same time, the costs that SPS pose in terms of farmers' livelihoods have been underestimated."

[76] While recognizing that individuals are important, the focus should remain on the structure of the industry and the problems inherent in the structure.

Conclusion

A discussion of quality and hygiene standards is not simply about the West's meat preferences for tender meat or hygiene standards extending out to "other" regions of the world. Industrial meat production is clearly grounded in distinct material conditions, and likewise, food habits and preferences are locally situated and interact with a variety of historical, economic, and cultural factors that create diverse outcomes. By focusing on a specific region and the actors within that region, a more complex understanding of contradictory processes of globalization can be had.

Some actors in South Africa are actively supporting the pursuit of tender meat and HACCP implementation, both of which encourage trends in concentration and centralization. These actors tend to be large feedlot producers, large retailers, and wealthy consumers. However, as should be obvious from the discussion in this chapter, many other actors, particularly previously disenfranchised groups, do not benefit from the production of tender meat or the implementation of HACCP. There are some local initiatives underway to offset the impact of standards and standardization.

At the provincial government level, several provinces have implemented policies or laws that are more accommodating to small participants. In one region the policies led to the establishment of over 150 abattoirs that are only large enough to slaughter one animal per day. The establishment of these abattoirs encourages the production and distribution of meat that is more suited to local preferences, while also helping to ensure the meat has been handled in a manner that ensures food safety.

In Durban (one of South Africa's largest cities) local health inspectors have modified the standards to facilitate the establishment of informal meat traders and to ease the burden of regulation on an already strained government system. Durban has approximately 7900 informal food traders, with only four inspectors to enforce food safety and hygiene standards. For meat sellers, the inspectors implemented an education program that encourages just-in-time preparation. All informal perishable food sellers participate in a workshop that teaches venders about waiting to prepare the food until it is ordered or just before a lunch hour rush. By encouraging just-in-time production, health inspectors are reducing the risk of food spoilage and contamination that occur due to problems associated with food being kept at a ambient temperature for too long a time. Thus the safety inspectors argue they are achieving HACCP principles through identifying and controlling critical control points. In this instance safety inspectors have renegotiated HACCP principles to better fit the context.

In addition, Durban's city inspectors also changed laws so as to accommodate the slaughter of animals at individuals' homes for ceremonial purposes. This again will help to ensure the continued existence of diversity in meat preferences among some consumers in urban areas. All of the above cases are examples of policy changes that will ensure the continued existence of retailers and consumers that are not a part of the broader process of concentration and centralization.

For previously disenfranchised actors the continued development of local initiatives within some areas of South Africa provides new opportunities and alternative visions for future agri-food networks.[77] While none of the local initiatives just mentioned

[77] This supports Bonanno et al.'s (1994) point that regulation of the global agri-food system is most likely to occur at the transnational or regional/local level, not at the national level.

will bring a halt to the pursuit of tender meat and HACCP implementation (as recognized by dominant beef trading countries), these local initiatives create spaces of resistance and alternative practices. National and international bodies regulating global trade would do well to follow the lead of local South African officials. That is, local officials have developed practices and standards that incorporate the ethics, politics, and history of a region, which requires acknowledging who benefits and who loses economically and socially from the adoption of specific standards.

CHAPTER 5

Defining Consumers in a Changing Industry

Up until this point the focus of this work has primarily been on the production aspects of red meat. We now turn to a discussion of another group of actors in the red meat commodity network: consumers and issues of consumption. This chapter begins with a brief review of the growing literature on production-consumption linkages in agri-food studies. Building on this literature, different categorizations of how industry participants discuss consumers in South Africa will be presented. The development and analysis of the categories emanating from industry perspectives about consumers highlights the importance of listening to how industry actors speak of consumers. Finally, conclusions are drawn about the consequences for how consumers are described among industry participants.

There are moments during fieldwork when a researcher experiences the excitement of discovering unexpected relationships and findings, yet is puzzled about how to explain these findings. The data for this chapter are situated at the center of these two emotions. For these reasons this chapter is data driven. Of the first sixty-seven interviews conducted with members of the red meat commodity chain, all but three mentioned the South African consumer and/or consumption trends.[78] However, the questionnaire used for the interviews did not have a direct question that explicitly dealt with consumers or consumption. In total, sixty-four of the first sixty-seven interviewees mentioned consumers without prompting from the interviewer. Generally, consumers

[78] After the sixty-seventh interview, the questionnaire was modified slightly. Of the sixty-seven interviews, five were conducted with people who work for consumer organizations or are concerned with consumer issues. The majority of the first sixty-seven people interviewed were white males (n= 57), which is consistent with the make up of the commercial red meat industry as a whole.

were first mentioned in response to a question that asked industry participants their views about the driving forces behind changing standards in the industry. After interviewees would reference consumers as the reason changes were occurring in the industry, interviewees were encouraged to elaborate on who they meant by "consumers." The follow-up question often generated perplexed stares from the interviewees or responses that simply restated assertions about the vague category "consumers." With such an overwhelming number of people referencing consumer demand, it appears that any researcher interested in standards in an agri-food industry has to attempt to gain a better understanding of the relationship between standards, standardization within an industry, and consumers. Confronted with this complex interrelation, Lockie (2002, 278) asks: "[W]ho are the apparently sovereign 'consumers' . . . and how do they place 'demands'? Is the 'invisible mouth' of 'the consumer' to replace Adam Smith's mysterious 'invisible hand'?"

Ultimately, this chapter is built around the comments made by members of the red meat commodity network about consumers. By beginning to understand industry perspectives about consumers, light is shed on the way the industry is structured for and by South African consumers. To borrow from Marsden et al. (2000, 3) the themes that emerge about South African consumers will "implicate and influence the provision of foods and the provision of choices of food the consumer is offered." However, as this chapter will show, consumers are bound-up in the provisioning of food and thus, some consumers are agents in shaping the agri-food network.

Literature Review

Within the theoretical literature, sociology and the broader social sciences have historically been production-focused with minimal attention given to consumption (Campbell 1995; Marsden et al. 2000; Miller 1995). Within agri-food studies production and consumption tend to be treated as dichotomized fields of study, with rural sociologists studying production and food studies covering topics of consumption (Goodman 2002, Friedland 2001, Lockie and Kitto 2000, Marsden et al. 2000).

Despite having shown in the previous chapter that a focus on producing tender meat within industrial production requires organizing and taming the entire process – involving everything from the genetic make-up of the animal to how a piece of meat is cooked – rural sociologists have primarily focused solely on aspects of production. Agricultural commodity studies have been especially production-focused and structural in form, often failing to recognize key actors within a commodity chain (Arce and Marsden 1993; Long and Villarreal 1998). When attention is given to consumption and consumers within agri-food studies these studies are critiqued for keeping the category consumer as an amorphous whole, without delving into the complexity associated with production-consumption linkages (Friedland 2001; Goodman and Dubois 2001).

In addition, studies that have focused on the changing structure of agricultural production have primarily focused on North American agriculture. Arce and Marsden (1993) assert that a political economic food system approach, while encouraging the study of change in North American agriculture, has given insufficient attention to the cultural, political, and economic diversity existing in developing countries. Much of the previous political economic food studies literature, to which Arce and Marsden refer, was

grounded in a period when political representation of producer interests in industrialized, Northern countries dominated. For a variety of reasons, including the increasing importance of global trade, privatization of agricultural technologies, and retailer concentration, a shift occurred beginning in the 1980s to a more consumerist orientation in policy development followed by a similar shift in academic research (e.g., Edwards 2000; Gaberiel and Lang 1995; Gotdiener 2000; Gronow and Warde 2001).

Separate from the literature focusing on the changing structure of agriculture are food studies. Within sociology, much of the food studies literature on consumption is really the study of consumerism, such as the formation of tastes and links between status and purchasing (Marsden 2000; Warde 1990). Of particular importance to this research project are food studies that have focused on red meat. Red meat has been explored from the consumerist perspective with the recognition that meat can signify certain class and gender qualities about the person who consumes it (Adam 1990, Lupton 1996). For example, certain cuts or types of meat are associated with higher or lower status and, in turn, with people of a particular class background. Filet mignon (higher status meat) and mince meat (lower status meat) are examples of two different cuts of meat that people associate with different status positions. The different statuses that people associate with differing types of meat is in part related to the higher and lower price of each cut of meat. In addition, because class and race are tightly interwoven in South Africa, meat consumption (i.e., types of meat and ways of consuming meat) tends to have racial significance. For example, historically Europeans viewed beef forequarters as inferior to

beef hindquarters (refer to Wylie 2001: 109). In South Africa black consumers primarily buy beef forequarters, whereas white consumers primarily buy beef hindquarters.[79]

In reference to gender, Lupton (1996) notes that red meat is generally associated with men and manliness, while fish and vegetables are associated with females and femininity. As further support to the gendered ideas surrounding meat, a study conducted in the 1980s that looked at fifty different forms of work in 186 countries found only fourteen activities that were performed strictly by men in almost all societies. One of these fourteen forms of work was the butchering of animals (Mosse 1993). Within South Africa, red meat production and slaughtering are considered masculine activities, regardless of race. In addition, those who purchase meat for immediate consumption at roadside stands or at urban butcher stores (which usually offer a means to cook the meat self-service style) are primarily black males.[80]

More recently, agri-food studies have attempted to improve upon production-consumption linkages (Goodman 2002; Goodman and DuPuis 2002; Gouveia and Juska 2002; Lockie 2002; Lockie and Kitto 2000; Marsden et al. 2000). Central to gaining a better understanding of why consumers are identified as important in changing standards are two significant shifts that have occurred in agri-food networks. First, there has been an economic and political shift in supply chains from strong representation of producer interests in agricultural policies (and public interest regulation) to food manufacturer and retailer strength in food chains (and private interest regulation) (Marsden et al. 2000;

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[79] Usually the hindquarter costs more than the forequarter. However, during the time of this research the price of forequarters surpassed hindquarters. According to several interviewees this was the first time this had ever happened.

[80] The history of employment opportunities for black South Africans has contributed to the creation of large numbers of gendered spaces, with more men occupying public spaces and more women occupying primarily private (i.e., household) spaces.

Miller 1995). For example, since 1984 in the United States, the real price of a market basket of food has increased by 2.8%, while the farm value of that food has fallen by 35.7% (Taylor 1999). The declining farm value of food appears to be a global trend, as does the increasing concentration among food retailers (Reardon et al. 1999; Weatherspoon and Reardon 2003). The shift to privatization and concentration has seen an increase in the use of private industry standards for maintaining food safety, hygiene, and quality above the government-mandated standards. As agri-food networks have shifted more towards private regulation of standards, the State increasingly acts as a backstop to try to maintain basic safety standards (Dunn forthcoming; Marsden et al. 2002). However, the state's ability to effectively act as a backstop, especially within transitional governments like South Africa, is questionable (refer to Chapter 2 for an elaboration on this topic).

The second trend, very much related to the increasing power of food retailers, is an increasing emphasis on "consumers," rather than citizens, interest and choice. Generally, the term citizen can be viewed as a political concept and consumer as an economic concept (Gaberiel and Lang 1995; Marsden et al. 2000). Marsden et al. (2000) argue that the increasing use of the term consumer rather than citizen reflects the shift from public (government) regulation to private (industry) regulation. More than just a change of language, the way members behave in the supply chain is directed by this shift in emphasis. Citizenship rights are about forms of entitlement and these forms of entitlement mean citizens have certain expectations of the state (Marsden et al. 2000).[81] Historically, within welfare states the role of government was to ensure freedom from

[81] Of course, the state does not treat all citizens the same. Historically, this was especially true in South Africa, where the government went so far as to designate a majority of the population as non-citizens.

want through the provision of affordable and safe food (Gabriel and Lang 1995; Marsden et al. 2000; Wilska 2001). According to Marsden et al. (2000), the rise of the importance of consumers has tended to undermine the traditional role of the state and led to the construction of more privatized (and differentiated) forms of rights to food provision.

Ultimately, privatization can have very different consequences for consumers. Food retailers' abilities to regulate supply chains are variable, as is their willingness to develop food standards above state baselines. In the context of food safety and quality standards food retailers will differ in the level of standards they choose to adopt and maintain. For example, some stores opt to track meat products from the farm to the plate, while other stores remain unaware of where the meat they sell originates. Therefore, consumers' ability to "choose" where they shop (choice might be based on store availability/accessibility, price concerns, or store preference, etc.) means consumers enjoy differentiated rights to food quality (Marsden et al. 2000). This implies a different definition of rights. More and more, through the use of money, consumers' ability to pay differentiates consumers' rights to participate in a certain way of life (Gabriel and Lang 1995; Wilska 2001).

Marsden et al.'s (2000, 45) work focuses on rights to consumption or "those entitlements that help to structure the choices that consumers make." From Marsden and his colleagues' perspective it is important to understand how food choices for consumers are created through the activities of retailers, food manufacturers and all actors in the agri-food system. However, Lockie and Kitto (2000) argue that Marsden remains focused on the structure of agriculture and ignores how consumers are active participants in shaping the agri-food networks within which they exist. Following the lead of Lockie

(2002), this chapter utilizes ANT (Actor Network Theory) as a means to identify consumers as relational and performed categories. Within ANT, relational materiality means that consumers achieve their form as a consequence of the relations in which they are located (Law 1999). Similarly, consumers are performed in, by, and through these relations. Thus, the consumer only takes shape in relation to the entire agri-food network and only through the performance of everyone in the network. Utilizing these ideas from ANT combined with the ideas of liberationist science studies, especially those of Sandra Harding (1991), offer the opportunity to promote a more dynamic vision of consumers. This is a point to which I will return at the conclusion of this chapter.

Methodological Comment

Before reviewing the categories of consumers a few methodological comments are needed. Key actors in the industry operate with a series of assumptions about consumers, many of which are not made explicit. In many ways, industry actors' assumptions exemplify Schutz's (1973) concept of the "natural attitude." That is, humans function on a daily basis by creating "typifications" of the world around them. Typifications allow people to go through daily routines assuming and expecting that other people and things will act in a particular manner. The "natural attitude" allows humans to simplify what could be a very complex process of interaction with the world around one's self. Thus, the "natural attitude" of daily life is that we engage in typification for the purposes at hand. Any change in the purposes at hand may induce us to be interested in a different set of details about an object.

Schutz's typification should not be confused with the stereotyping of people. Whereas typification of people occurs on a daily basis (perhaps by noting their unique characteristics of relevance for the purposes at hand), typification does not automatically attach pejorative meaning to characteristics in the manner that stereotyping usually does. In addition, typification of people tends to occur along multiple categories, whereas stereotypes tend to create binary categories, e.g., us/them, good/bad, etc.[82] Most importantly, typification is the way we know the world, while stereotyping stops us from or inhibits our ability to know the world. Schutz's (1973, xlvi) discussion of the common sense world means that the social scientist's task is to reconstruct "the way in which men in daily life interpret their own world." This chapter is directed at this task. The identified categories of consumers summarize how industry participants talk about South African consumers. Each category discussed below contains some stereotypical viewpoints. Thus, one goal of this chapter to tease out the stereotypes expressed within each category. While industry actors' typification of consumers may benefit the industry and consumers by helping to organize markets in a predictable manner on a daily basis, stereotypes of South African consumers will undoubtedly harm some consumers and possibly the industry.[83]

Of course, there are some individuals in the industry who conduct surveys in order to construct an image of consumers. However, even the surveys and other marketing tools are built upon embedded assumptions about consumers. Kover (1967), one of the earliest scholars to identify this fact within the field of marketing, draws upon

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[82] Stuart Hall (1996) discusses the use of binary opposites in stereotypes.

[83] Many of the stereotypes that exist in the industry have been cultivated over many years and are bolstered by hegemonic beliefs and views that have had significant material investment at least as early as European settlement in South Africa. Therefore, doing away with false stereotypes can be a complex and lengthy process (Said 1995).

Weber's recognition of the endless complexity of social reality to explain that for any study of human behavior to take place, a model human must be constructed in order to simplify the complex. He writes, "all models have one thing in common: they describe some basic behaviors, needs, or situations and make the assumption that 'this is really what man [sic] is like'" (Kover 1967, 129). Thus, actors in the red meat commodity chain who operate in the market *must* believe in the existence of "the" consumer. However, "the" consumer has not been constructed as an explicit, agreed upon model within the industry. Rather, like Schutz's description of typification, how the industry views consumers only emerges through an analysis of statements and actions made by people in the industry about consumers, the topic to which I now turn.

Categorizing Consumers

The following categorizations of consumers are developed based on the comments made by all the interviewees involved in this study. The interviews were coded "consumer" each time reference was made to consumers in the course of the interview. All consumer comments were collected and further coded into categories based on similarities between respondent comments. In total, five main categories were identified. The five categories are: (1) the female consumer; (2) consumers in need of education; (3) educated consumers; (4) race and the consumer; and (5) ambivalent consumers. The development of distinct consumer categories allows for the construction of perspectives or beliefs that are dominant within the industry without the industry having an explicit agreement or necessarily being cognizant of these consumer templates. Each category is discussed in detail below. Included are some of the apparent

contradictions inherent within each category. A theoretically driven analysis follows the discussion of the largely descriptive development of consumer categories.

The Female Consumer

A constant theme throughout the interviews was reference to "the" consumer as a female. One interview that best captures this was held with an executive of a large retail chain in South Africa. Throughout the interview the executive referred to consumers in the feminine, such as, "yes, the consumer, she will determine which stores survive." This same retail store conducts market surveys on a regular basis. When asked about the number of women versus men who shop at their stores, the senior manager responded that forty percent of their customers are male. However, he continued on to say that they assume most of the men in the store are stopping by on their way home from work with a grocery list prepared by their wives. Otherwise, if the male is doing the shopping on his own, then he is most likely buying the meat for the *braai*, which is the South African equivalent of a U.S. cookout.[84] Therefore, this retail chain operates on the assumption that regardless of the gender of the person who is physically in the store, it is still ultimately the female who is doing the primary shopping. This is an example of an interesting twist on the idea of the disembodied consumer – a consumer that is discussed as an abstract subject whose choices are not mediated by the historical, political or symbolic significance of daily life (Kaw 1994).

The industry tends to typify the customer as being female, despite the physical presence of males in the store. However, an apparent contradiction emerges when it is

[84] The *braai* in South Africa does cross racial lines, but it is generally associated with white males and large quantities of meat. If a *braai* is held, males are always in charge of grilling the meat, while the females oversee salad preparations, etc. If there are only men having a *braai*, without women involved, it is not uncommon to simply eat meat, with no salads.

recognized that the actual consumption of red meat is overwhelmingly associated with men and masculinity (Adams 1999; 1994). Assuming South Africa is not an outlier, Fiddes (1991) notes that around the world meat is associated with strength and aggression, traits often assigned to men. In addition, there is also a long history of Western women (particularly white, upper-class) subscribing to Victorian ideals which suggested women should not eat meat due to the frailty of their digestive systems and the immoral acts that might be encouraged by meat eating, such as sexual development and activity (Brumberg 1997). Finally, around the world meat avoidance is more common among women (Fiddes 1991).

There is also the additional fact that while females around the world are primarily responsible for feeding their families, women do not necessarily have complete control over the flow of food into a family (McIntosh and Zey 1989). Most people interviewed in the industry seem to miss the idea that men may have some say in the meat purchasing decisions of women. However, it is interesting to note that there were several pictures featured in the old South African Meat Board newsletters that suggests men are minimally recognized as consumers of the product, albeit in a somewhat indirect manner (refer to Appendix D). The photo pictured refers to men as consumers of women and thereby consumers of meat.

Consumers in Need of Education

Along with the belief in consumers as female, there is a widespread belief among people in the industry that consumers need to be educated, either about food safety, meat quality, or carcass classification. Statements that reveal the perspective of needing to

educate consumers include: "we need to educate the consumer to be critical of what she buys, with more emphasis on food safety," or "consumers are ignorant of grades, especially pork – they just go to the butcher and ask for pork, not a grade. Educating the housewife costs a lot of money, something the industry does not have." Related to this, the female consumer is discussed in a manner that suggests she is unsophisticated in her thinking; and the details may be too complex for her to comprehend. Statements were made such as, the "quality of the product needs to be communicated to the consumer in a very simple way," or "the customer needs educating in the store."

Statements about educating consumers prove to be contradictory in at least two ways. First, when purchasing meat, there are very few indicators to guide the customer in the store. The two primary indicators are the price and the way the meat looks. Thus, unless retailers are prepared to equip stores with microscopes, swab tests, and scientists, or more realistically provide more detailed labels that can give consumers more information regarding the safety and quality of the meat, then it is not clear what more consumers need to understand when purchasing meat. Of course, once consumers prepare the meat, they can then refer to other factors, such as taste, tenderness, and whether the product made them sick; but these are all things that occur after the point of purchase.

As for understanding the carcass classification system, once the animal has been cut into pieces, the inspection stamp (which is stamped only once on each quarter of the animal and certifies the carcass is not diseased) and the rollermark (that classifies or grades the carcass) are for the most part not visible to consumers. Thus, even if consumers understand the classification system, there is a continued need to trust the

butcher or store manager that the animal has been inspected and classified as whichever category consumers think they are receiving. In addition, as elaborated on in the previous chapter with respect to classification, there has yet to be a system that ensures a particular classification or grade will give consumers tender and tasty meat. Worldwide, the meat industry continues to struggle to predict how meat at the point of slaughter will turn out at the point of consumption.[85]

Educated Consumers

The second contradiction in educating consumers is that these statements were often preceded or followed by statements about the market being consumer driven, or letting the consumer decide. Letting the consumer decide ranged from decisions on hygiene and food safety to what products consumers would choose to eat. For hygiene and food safety there were statements such as, "Hygiene is always a problem; consumers must check-up on and police the systems themselves. It is up to consumers to check up on her local retailers and complain if they see a problem," and "consumers now want to know what they have on their plate; previously they did not care, but now they want to know." For the types of products desired some retailers indicated, "the customer will tell them when it is time to remove the other sausages from the shelf. What they purchase will decide." Interestingly, the same person who said this also stated, "you can sell anything you want to the consumer, but what about what the consumer wants?" This perspective treats consumers as well informed and a potentially powerful part of the

[85] In the early 1960s Campbell's Soup Company sponsored an international symposium solely on the topic improving the tenderness of meat (Pearson 1963).

production/consumption nexus, while the previous perspective viewed consumers in a much different light.

Race and the Consumer

The above statements about the un/educated consumer were often made with an additional reference to race. For example, "It is difficult to educate the white housewife; it is even more difficult to educate the black housewife. The black housewife cannot read, etc., so it is harder to reach and teach her." For some there is recognition that race and class are becoming decoupled in the South African market. For example, one person said, "the consumer is driving the process. It use to be the white consumer, now it is the middle and upper-class consumer, which is not specific to race." However, for a vast majority of interviewees, race continues to signify difference in the meat industry. Difference includes levels of education, types of meat or meat products preferred, and perceptions about the level of food safety and quality consciousness. Some of the differences were stated simply as fact, such as that the black population consumes the majority of beef forequarters in the country, while the white population consumes the majority of beef hindquarters. On the other hand, interviewees often made unsupported statements about differences, which were blatantly discriminatory toward black South Africans.

The overwhelming derogatory point of difference identified between whites and blacks is the belief that blacks are less concerned with meat safety and quality. Statements that portray this point include, "in the black townships they buy meat that is infected with flies, and they do not care." More subtle statements that imply racial and

racist differences include "in the rural communities people have no concept of food safety," and "the normal housewife is so happy just to provide her family with food, that not only would she not notice hygiene standards in a butchery, she would not even care." Of course, these statements fail to account for the ways in which some consumers were historically excluded from commercial red meat networks, thereby limiting some people's access to meat. During apartheid there were regulated and unregulated areas for meat classification. In general, black consumers of South Africa were marginalized (either by physical proximity or because the price of meat prohibited purchase) from the formal, regulated meat markets and they were largely ignored. Here again we see industry participants utilizing the disembodied consumer who makes choices without reference to historical circumstances, symbolic meaning or political significance (Kaw 1994). Even if those interviewed were to recognize the impact of the structure of the industry historically, there still remains the discriminatory stereotypical assumption that blacks, especially those who are poor and/or in rural areas, do not care about hygiene and quality.

Of course, the consumers under consideration do not allow themselves to be endlessly created to suit the purposes of the industry. Based on observations and interviews with people who have interaction with black consumers (e.g., butchers with a primarily black clientele, rural training specialists, etc.) the micropolitics of consumption reveals evidence that poorer, rural, and less educated segments of the population are concerned with meat safety/hygiene, and quality. For example, offal is generally associated in South Africa as being a part of the poor black person's diet.[86] Anyone

[86] Of course, this varies, with specific parts of offal considered as delicacies. However, in general, offal is viewed as an inexpensive protein for poorer people.

involved with offal sales in the industry knows that they dramatically decline during the summer months. There are two main reasons for this. First, offal tends to be used in stews and soups, which is generally a winter food and second, without proper cooling facilities offal tends to "go off" or become rancid quickly. At a very basic level this is an indication that the poorer populations do indeed have an awareness of food quality and safety.

Related to the racial differences that were noted among consumers was reference to South Africa as a First and Third World country. One person noted that the big retail stores all have First World standards and they are expanding, while the other people's standards in the industry (independent butchers, bush slaughtering, and farm slaughters) have dropped, and they are Third World standards. This metaphor was used many times throughout the interviews, and in some respects does well in describing the significant economic disparities found in South Africa. However, usually within the First World/Third World dichotomy is a racialized message. First world is equated with white, western, civilized customs, while Third World is associated with black, uncivilized and ignorant traditions.

Ambivalent Consumers?

A final category identified is ambivalent consumers. Several interviewees recognize consumers as not having a lot of power or as simply unaware of other options. One person involved with organizing the retail sector stated, "The consumer in South Africa is not formally organized and for the groups that are organized they have an interest, but it is slanted and weak. In addition, food and food standards rank very low

among all the other concerns held by consumers. Consumers just assume that things on the shelf are good and safe."

One industry person went on at length about consumers. Finally, when asked if the consumer is really important, he replied, "No, it would be nice if they were important. Consumers are such a controversial group. Lip service is paid to consumers. Now consumer groups are always on to issues." Several in the industry referred to ways they need to change consumers, e.g., "we need to convince lower income groups that they want to consume pork" or "we are teaching the consumer the right way to buy meat." However, the category "ambivalent consumer" might also be called the powerless consumer. If the comments from people in the industry are to be believed, then one is left wondering if consumers have any power.

With the recognition of an ambivalent consumer, it would seem that consumers would be differentiated in South Africa (and perhaps globally) according to her/his ability to pay. For example, one long time researcher of the South African red meat industry said, "niche markets will exist for higher standards products in South Africa. In the U.S., the consumer expects quality and meat is in excess, so they are unwilling to pay more, whereas here, meat is in shortage and therefore, if you want higher standards, then you will have to pay a higher price. Because all meat will sell regardless of standards, up to a point." Several people spoke of niche market consumers, which meant consumers who are willing to pay more for some special feature or quality. With the niche market concept in mind, perhaps it is possible that South Africa has both ambivalent and powerless consumers. Ambivalent consumers who have the money could demand through their purchasing power that their wants be fulfilled; however, they do not. Poor

consumers, on the other hand, are likely to have limited purchasing power and thereby, have limited ability to require that their demands are met.

Interpretation of the Categories

So what exactly does "the consumer" mean? One approach is to recognize that the question is only significant within a specific population of study. In other words, to refer to the general population and study consumers means you will get such a diversity of descriptions about who consumers are that the response will be meaningless. After all, everyone is a consumer and consumer preferences are always changing. Thus, to obtain any sort of useful response to the question, it must be bracketed to refer to a specific population, within a specific time frame. For example, who is the consumer who shops at this store during this particular time? Indeed, this is the type of question posed by marketing specialists.

Another approach, which can exist alongside the previous approach, is an understanding of consumers as a performed and relational category. If it is assumed that economics, rather than describing the world, actually shapes the world to fit the economists' models (Callon et al. 2002; Miller 2002), then the answer to the question "Who is the consumer?" is: "The consumer is constructed in the market." At first glance this account of consumers sounds too deterministic with little room for agency. On the contrary, consumers do exert agency, but it is always agency within the bounds of the market/society. Sociologist Robert Merton (1957) once noted that, even the way one rebels is shaped by the society within which the rebel is situated. To better understand consumers as performed and relational groups means one must understand which

consumers' voices are represented. This point is similar to that made by Slack (1988 cited in Wylie 2001: 5). He argues that policies oriented towards the poor in England changed based on which group – the economists, the clergy, or the magistrates -- held the public's attention. This chapter is built upon the assertion that consumers are a performed and relational category and thus, an analysis of the categories that arise from the way industry actors – retailers, government personnel, manufacturers – describe consumers is an important component to better understanding how consumers participate in agri-food networks. This is especially important when studying an industry that is in the process of adopting and implementing new standards and standardization. Developing these categories of consumers ultimately improves our ability to understand the impact of standards on all aspects of the network, including consumers.

This chapter has categorized how key actors in the industry discuss consumers. Beyond helping us to clarify and organize, categories are always interesting for what they leave out. In other words, categories shape how we view society and sometimes we can learn a significant amount about a subject by analyzing what is not discussed within a category (Roy 2001). As an example I return to the category of "the female consumer."

Beyond the material aspects of meat consumption as a gendered activity, a more theoretical understanding of why women are constructed as "the consumer" involves the recognition of how the category constructs not only women, but also men, and the relations between the two. As industry actors construct an image of the red meat consumer as being female they are simultaneously defining an image of what it means to be male. By constructing and insisting upon the maintenance of the female consumer that is in charge of nurturing (emotionally and substantively) the family, the speaker is

simultaneously insisting upon the idea of the male breadwinner that operates in the political and economic world, free from the burden of the personal realm. As Coontz (1992, 53) notes, the use of "the term individualistic to describe men's nature became acceptable only in the same time periods, social classes, and geographic areas that established the cult of domesticity for women. The cult of the Self-Made Man required the cult of the True Woman." In South Africa the True Woman and the Self-Made Man were additionally bound by class and race identities as well. Note that the image in Appendix D portrays a white female. Of course, those retailers who are wise to the changing economic positions of non-whites in South Africa have broadened the scope of the True Woman. In addition, the photos of women labeled as meat further reinforce ideas surrounding female subordination and male domination. Fiddes (1991, 60) writes, "the portrayal of women, by men, as meat is an instance of the wider caricature of woman as animal . . . just as meat is a sign par excellence of man's control of the natural world, so woman as meat has been a particularly effective statement of her supposedly wilder social role, and availability as a natural resource for men."

Similar to the changing categorization of the True Woman and the Self-Made Man, a more theoretical interpretation of the un/educated consumer categories reveals new insights into a period of rapid changes in standards and standardization in South Africa's red meat industry. In the past theoretical discussions about the industrialization of agriculture drew attention to the transformations that occur in a commodity network up to the point of consumption, whereas more recently scholars have recognized the transformations that also occur at the point of consumption. Recognizing the changes that occur throughout the commodity network, including consumption contributes to our

ability to interpret what industry participants say about the uneducated consumer. The industrialization of agri-food networks requires the extension of production-consumption chains in time and space, which renders the point of food production increasingly invisible to food consumers (Fischler 1988). Taking this argument one step further, several scholars have noted that industrialized meat production rests on a foundation of socially distancing the slaughterhouse from the minds of consumers (Fiddes 1991; Gouviea and Juska 2002). Gouveia and Juska (2002) argue that the industrial meat production process thrives on the separation of the less palatable conditions of industrial meat production from the act of consumption. This separation includes the continuous "proletarization and marginalization of displaced communities of labor" and the construction of consumption imaginaries by complex industry networks (*Ibid* 374). Labels used on meat products are one aspect of the complex imaginaries used to encourage the separation of the act of consumption from the processes of production. For example, one company in South Africa has a label that features a steak that is cooking on a grill. The words above and below the steak include: "Matured" and "Tender and Tasty." Thus, when industry participants speak of consumers as uneducated, they are suggesting that consumers need to be re-educated and thus, more accepting of meat emanating from industrial livestock production processes.

Similarly, educated consumers are the persons who have properly embraced the purchasing and consumption of industrial meat and all of the conventions that surround the consumption of meat from industrialized processes. Conventions surrounding the consumption of industrialized red meat include consumers learning the names of specific cuts of meat and understanding how different cuts of meat should be prepared. In

addition, consumers must adapt to meat that tastes and looks different from meat produced in non-industrialized settings. There is also another dimension of the educated consumer for the purposes of the industry. Educated consumers signify the consumer that the industry is trying to "know." Thus, the educated consumer symbolizes consumers that the industry depends upon for sales and these are the consumers that the industry surveys in an effort to identify trends, including the types of meat products consumers might purchase in the future.

Finally, the last two categories, labeled race of the consumer and ambivalent consumers, both link broadly to issues surrounding the power of consumers in a marketplace. South Africa is one of the most inequitable societies in the world (May 2000). Therefore, it is perfectly reasonable to make statements such as, "on the consumer side, standards are changing because people's ideas about nutrition and health are changing and perspectives about meat as it relates to health. But again in South Africa we have a big, diverse population to deal with and some people are just concerned with eating." Indeed, as long as the extreme inequalities exist in South Africa, there will be extreme differentiation among consumers. However, in an inequitable society the concern should be that consumers who are among the most subordinated in society (e.g., due to their class position in society) are those likely to suffer the consequences of stereotypes within the industry. Thus, even if all consumers in South Africa are concerned with food quality and safety, the ways the commercial industry markets to the consumer have the potential to refashion the profile of meat consumers in the shape of current categories, some of which are misleading stereotypes (Lockie 2002). Lockie (2002, 289), who makes a similar point about consumers of organic foods suggests that,

"this does not mean potential consumers are disempowered and manipulated, but it does mean some "demands," are more visible and more likely to be met than other demands unless alternative knowledges and projects are brought to the fore."

In addition, industrialization of agri-food networks undermines traditional bases of trust (Lockie 2002). Standards and standardization are part of the increasing industrialization of agri-food networks, and as such, consumers must accept the increasing distance between production and consumption practices and be willing to shift the way 'trust' is conceptualized, from individual to institutional forms of trust (Lockie 2002). For example, anyone intimately involved in a local South African community that is serviced by a tree slaughterer utilizes their trust in the person selling the meat as an assurance that the meat is safe. Indeed, those involved in the business of tree slaughtering are very aware that if they sell meat that makes people in the community ill, everyone in the community will refuse to purchase meat from them in the future. Thus, through the reliance on trust between individuals, an acceptable level of meat safety and hygiene standards are maintained.[87] Likewise, a study funded by the FAO reveals that overwhelmingly the street foods available in the Gauteng province (which includes the cities of Johannesburg and Pretoria) of South Africa are safe to eat (Martins and Anelich 2000). Street food vendors generally serve a small clientele and earn a very low income from their sales. However, in order to maintain a customer base the street food vendor has a strong interest in maintaining individual rapport and trust with her/his customers.[88]

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[87] The concept of "acceptable" is the source of significant debate. Generally, statistics related to food-borne illness in South Africa, especially in rural areas, are almost non-existent. Until scientific studies are conducted to assess levels of food safety it is unclear how safe or unsafe meat products actually are. In the context of this discussion "acceptable" refers to perceptions among community members regarding safe meat.

[88] Street food vendors are primarily female.

Even within a city setting, the degree of trust that customers place with a street food vendor is crucial to the long-term survival of a street vendor's business.

As an industry adopts standards and standardization for, at least in part, the purposes of international trade, the industry must simultaneously convince domestic consumers to trust institutions, over and above, their trust in individuals. Clearly, it is in the industry's interest to encourage all South African red meat consumers to put their trust in institutions. In fact, only through convincing consumers to trust institutions to maintain adequate standards of food safety and hygiene can the industry be successful in implementing industry-wide standards and the standardization of standards. This suggests that while South Africa may have ambivalent consumers, consumers are far from being powerless. The industry must enroll the participation of the majority of consumers within South Africa in order to further the implementation of standards and the standardization of standards.

Conclusion

One confidential report that evaluates the impact of the old meat board on the red meat industry in South Africa notes, "red meat is considered a staple food by producers, yet perceived as an expensive item by consumers, an indication of the gap that exists between these interests within the meat filière." The report states that the producer-dominated system, which fails to account for the consumer, is the reason for the overall reduction in red meat consumption among consumers. While the veracity of such uni-causal models would benefit retailers tremendously, the ability to pinpoint a cause in consumption changes thus far has not been so easy. Red meat consumption globally

continues to hold steady or decline, depending on the product (e.g., consumption of lamb is declining while pork and beef consumption remain the same) and the methods used in measuring meat consumption (i.e., taking into account techniques used for measurement and recognition of sampling error). Within South Africa, red meat consumption has seen a two per cent decline annually for the past several years. Growth in meat consumption is largely viewed as occurring in poultry, not in red meat. This leaves many in the industry expressing a sense of urgency in understanding ways to increase red meat consumption and increase the number of consumers. In part this requires that industry participants become increasingly aware of "the consumer" and, hopefully, gain a better understanding of consumers. However, if the information that industry actors are receiving about consumers is "slanted and weak" as one interviewee suggested, then the industry is likely to capture an inaccurate understanding of consumers.

Utilizing concepts from ANT contributes to a better understanding of the importance of viewing consumers as relational and performed in the context of an industry implementing new standards and standardization. As Latour (1987) and Law (1987; 1999) note, consumers are always constructed in relation to something else. Thus, we are able to understand that primarily female consumers are constructed in contrast to the position of males in a society. Likewise, by participating in the construction of consumers, the industry is simultaneously constructing itself. The industry's relationship with consumers is shifting with the loss of government regulation and changes in international trade rules. The changes include many previously disenfranchised consumers who now participate in shaping the future of the industry.

Similarly, consumers are performed in, by, and through their relations to the industry. A concept that contributes to a better understanding of how the consumer is a performed category is "heterogeneous engineering." Heterogeneous engineering is defined as an "interrelation of a range of disparate elements of varying degrees of malleability" (Law 1987, 113). Law (1987, 114) continues to explain, "elements in the network prove difficult to tame or difficult to hold in place. Vigilance and surveillance have to be maintained" in order for the network to remain intact. The red meat network in South Africa has been destabilized because of "freer" trade (i.e., less national government intervention) and other national changes linked with the end of apartheid. Participants in the red meat industry are very aware of the industry's changing relationship to consumers. Thus, when asked about changes in the industry, participants are likely to mention consumers. However, when actors in the industry speak of consumers, they are simultaneously involved in trying to tame or stabilize the network by defining the relationship of the industry to the consumer. In other words, speaking of consumers contributes to the redefinition of the industry's relationship to consumers, with the intent of establishing a more durable red meat network (Law 1999).

Using the insights of the relational and performed aspects of consumers and the industry contributes to a better understanding of why it is important to listen to and analyze the way industry participants construct consumers. As industry participants are constructing consumers, they are not just describing the world around them, but also participating in the creation of that world and redistributing power in the network. In other words, both things and people are co-constructed in a commodity network.

The concern should be over which consumer "demands" are made more visible by the creation and implementation of standards. Sandra Harding (1991) has introduced the concept of strong objectivity in science studies as one way to address how power is differentially distributed in current understandings of science. Harding argues that science would achieve a stronger objectivity if more perspectives representing the diversity of the world were added to a debate or area of inquiry. However, Truth, with a capital T, is something that will never be achieved. Similarly, the consumer is something that is dynamic, and, therefore, the idea of gaining complete knowledge or Truth about consumers is unattainable. However, it is certainly possible to construct an understanding of consumers that is closer to or further from the many truths that can exist surrounding consumers. The focus should now be on ensuring alternative knowledges and projects about diverse consumers are brought to the fore (Lockie 2002). In order for all consumers to have access to safe and quality red meat, the industry must gain new knowledge about diverse consumers and move away from inaccurate stereotypes about previously marginalized consumers.

This chapter has attempted to explore the various ways consumers are constructed among industry participants and to suggest which assumptions bring us closer to understanding the endlessly changing consumer. To analyze how the industry participates in the construction of consumers helps us to understand the types of choices or the way food is provisioned for consumers. The fact that all of the categories identified in this chapter are in the process of being transformed by larger social changes suggests that there are opportunities for amending the conceptualization of consumers, to better reflect the relationships that consumers currently have with the industry.

CHAPTER 6

Conclusion

The production and promulgation of standards and the standardization of standards at the international level has existed for well over 100 years. In 1906 the International Electrotechnical Commission (IEC) was formed, followed by the establishment of the International Federation of the National Standardizing Organizations (ISA) in 1926 (Drori et al. 2003). Similarly, two significant international standard setting organizations were established in the mid-1900s, the International Organization for Standardization (ISO) in 1947 and the Codex Alimentarius Commission in 1962. Beyond the development of international standardizing organizations, there was also an increase in national standards-developing organizations. For example, the South African Bureau of Standards (SABS) was officially established by the Standards Act of 1945 (Act 24 of 1945) and was an outgrowth of the South African Branch of the British Engineering Standards Association.[89] The South African Branch of the British Engineering Standards Association had primarily been concerned with standardization of materials used in the gold mining industry (SABS Annual Report 1996-1997).[90] By 1999, sixty-two countries had at least one national standards-developing organization registered with ISO or IEC (Mendel 2001 cited in Drori et al. 2003).

With the advent of the W.T.O. in 1996, which effectively increased the level of organizational authority in settling trade disputes between countries, standards became

[89] The connection of South Africa's first standardization body to a "Western" country lends support to claims made by social studies of science scholars who argue standards and standardization emanate from Western countries and now dominate all countries (see for example Drori et al. 2003).
[90] More recently, SABS develops and enforces standards for a wide range of products. For red meat, SABS is only involved in standards development and enforcement of canned meat products.

increasingly important for global trade. This importance is due to the fact that standards are viewed as one means to achieve a more predictable and efficient trade system. Likewise, the importance of standards and standardization of standards to agri-food industries has increased with the extension of trade liberalization policies to agri-food products. However, as noted at the start of this dissertation, only within the past fifteen years have social scientists paid any significant attention to standards and standardization. Social scientists have increasingly studied how standards are constructed and how they simultaneously shape the environments within which they are constructed (Brunsson and Jacobsson 2000; Busch 2000; Grindley 1995; Krislov 1997). Due to the increases in global trade and the emphasis on standards and standardization, standards offer a means to study the phenomenon of globalization. Viewed in this light, this dissertation contributes to a better understanding of the ways in which standards, seemingly small technical details, contribute to constructing the world in some forms and not others. More specifically, by focusing on standards within one agri-food commodity network (red meat) this work investigates and explores the many connections that exist between and within global and local processes.

One of the primary questions examined in this dissertation is "how do international standards impact a primarily domestic market?" An analysis of tender meat standards and hygiene standards reveals the complex impact of international standards on diverse actors in South Africa's red meat industry. Much of the formal red meat network in South Africa is intent on producing tender meat for seemingly invisible overseas consumers. This work reveals that the production of tender meat encourages a specific type of industrial production and slaughter operation. In addition, tender meat production

encourages the development of certain breeds (and likewise discourages the existence of others) and promotes a loss of diversity in consumption practices. Curiously, despite the significant impact of tender meat standards, these standards remain unofficial as compared to hygiene standards. Hygiene standards are increasingly regulated on a global scale, and for the most part, HACCP, a hygiene management system, has become the obligatory passage point for agri-food industries interested in pursuing export markets. HACCP requires significant investment, provides little financial reward in the short term to actors that implement it, and is more difficult to implement in countries that have a highly fragmented farming sector and a large number of medium to small processors, such as South Africa. Through an analysis of tender meat and hygiene standards we realize international standards impact South Africa's primarily domestic industry in significant and diverse ways. This brings us to the second primary question that this dissertation addresses.

"How do standards interact with markets that are segmented by race, class, and gender?" Generally, standards and standardization offer some opportunities for previously marginalized actors to participate in agri-food trade. However, standards and standardization that coincide with international standards employed in the red meat sector appear to pose more challenges than opportunities for the vast majority of actors all along the red meat commodity chain. Those few actors (overwhelmingly white males) in South Africa who are dominant at specific points in the industry (e.g., production, processing, retail) appear to be the few who benefit from the new standards and standardization that are being introduced. However, there are situations where more marginalized actors could benefit from the construction and/or implementation of new standards.

The moments when more marginalized producers, processors, and retailers have the potential to receive benefits from new standards and standardization are almost always moments when government and industry officials participate in modifying the standards to better fit the situation. In other cases officials have stepped in to assist marginalized participants in meeting specific standards. One of the best examples is in the city of Durban. City officials are attempting to incorporate informal street food vendors (who are primarily black South African women) into a more standardized food distribution system that promotes food safety for consumers, while also enabling and maintaining the vendors' businesses. Another example is the rural, small-scale slaughter operators (primarily operated by black male South Africans) in specific provinces of the country. Through the combined assistance of laws that incorporate and recognize their businesses and a few industry personnel who work with these smaller abattoirs owners, the small abattoirs are in the process of being incorporated into the agri-food network. There are other areas of the country that criminalize slaughtering of animals outside of established, government approved abattoirs. In these provinces small-scale slaughter operators are not likely to survive due to a lack of support from industry or government personnel. Interestingly, based on the data collected, with the exception of the few provinces that are supporting small-scale abattoirs, all other abattoirs in the country are white owned and operated. This fact, combined with an understanding of the impact of HACCP implementation suggests that consolidation and concentration will make it more difficult for small-scale operators to survive. Thus, abattoir ownership will remain almost entirely among white South Africans.

Finally, the benefits of increased standards and standardization in the industry would seem to outweigh the costs for consumers in South Africa. However, as identified earlier, this group is currently poorly defined within the industry. While all consumers are potentially interested in consuming safe and high-quality meat products, the industry currently only recognizes or identifies consumer demand within a narrowly defined subset of the population. This subset is primarily comprised of the upper class, and for some in the industry, primarily white consumers. Current conceptualizations of consumers within the industry are disadvantageous to the lower class and non-white consumers.

Making the Global Local

Standards are part of a global science and technology. Harding (2001, 291) suggests that, "scientific and technological productions are now the foundation of the global political economy. This economy continues to expand into new areas around the globe, and to structure more deeply and completely daily life in societies in which it has already been present." Furthermore, Drori et al. (2003) suggest that it is only through the globalization of science that the groundwork is set for global standardization. Similarly, Latour (1987) proposed the metaphor of a train on its tracks to symbolize the movement of science and technology. He observed that science must always have tracks on which to operate, otherwise science does not penetrate spaces where tracks are not in place. Thus, when focusing on standards (that are bound up in science and technology) and agri-food networks, it is abundantly clear that the concept of globalization masks operations of material reality. Law and Hetherington (2001) assert globalization implies some kind of

totality; some kind of global system and it misses spatialities implied in the enacted materiality.

This work has sought to reveal the spaces in which standards are enacted. This includes a more dynamic understanding of actors' experiences and interactions with standards and standardization due to the performed and relational materiality of each actor in the network (Law 1999). This work has not made explicit the use of liberationists' accounts of science. Yet, by interrogating some of the "silences" surrounding how the world is made, this work contributes to demands by liberationists that science be recognized as contributing to the construction of societies in some forms and not others (Haraway 1997). Rather than view standards as simply technical details, a liberationist account of science reveals how standards are not neutral or rational when standards and the standardization of standards are enacted within diverse environments and societies (Haraway 1997).

A common theme shared by liberationist accounts of science and agri-food scholars interested in a more just and equitable food system is a focus on "the local." This does not mean a return to micro versus macro level analysis, but rather a recognition that all action is spatially enacted. In general, social studies of science and technology (SSST) encourages an understanding of science as inherently local, meaning science is always produced in a location (a space and a place). Latour's (1987) use of networks is one way of capturing the locality of science. Scientific and technological concepts that successfully encompass the globe do so through larger networks that enroll more and more actors (human and non-human). Thus, even when focusing on a technology such as the automobile, within actor-networks one is always able to see that automobiles traverse

the globe by enrolling more and more actors within locations. In order for automobiles to function, you must have roads, gas, technological know-how to build the vehicle or equipment to ship vehicles to the location, replacement parts, people who know how and are willing to drive automobiles, etc. Certainly, there are spaces where not enough actors have been enrolled and in these spaces automobiles do not operate.

An understanding of science as local allows one to understand that science is also cultural. Rather than portraying science as the "culture of no culture" (Traweek 1988), science is best understood as informed and energized by the culture within which scientific systems operate (Harding 1998; 2001). By understanding the cultural aspects of science, the ways in which standards are conveyers of culture can be unraveled. Recognizing standards as embedded within culture allows scholars and practitioners the opportunity to evaluate the impact of standards on diverse cultures.[91] For example, Drori et al. (2003, 281) identify what they see as a negative aspect of the scientific culture currently embedded within global standards when they write that science "is heavily intertwined with modernist concepts of a rational order [and] acts as a central impetus for countries to embrace global standards." The authors continue, "rational order, with its concentration on cause-effect relations, is a product of globalized modern, mostly Western, culture" (2003, 284). Once culture is recognized within science, and therefore, within standards, all actors in a network can begin to evaluate and debate which cultural values are important. Far from offering a way out of cultural and political debates surrounding science, liberationist science scholars suggest, "what should count as science remains both an epistemological and a political question" (Harding 2001, 302).

[91] In addition, understanding standards as a part of culture furthers our recognition of the ways that dominant actors can use standards to their advantage. Since these standards reflect a dominant group's culture, the imposition of standards on less powerful actors also implies an imposition of culture.

Similarly, Magdoff et al. (2000, 20) argue, "creating a just and environmentally sound food system cannot be separated from the creation of a just and environmentally sound society." Agri-food scholars have continually called attention to not only the inequitable provision of food (Mardsen et al. 2000), but also to the ways in which agri-food networks enroll more marginalized actors, including agricultural workers, poorer communities, and the environment in such a way that benefits wealthier, more powerful actors in the agri-food network (Baker 1999; Brandt 1999; Friedmann 1999; Gouveia and Juska 2002). Baker (1999) argues that in order to promote a more equitable food system, food production must be rooted in local economies. This raises the critical question of whether agri-food standards and standardization can even exist within a framework striving to create a more equitable and just food production system? Agri-food scholars and liberationist science scholars would generally both agree that agri-food policies and science and technology policies must be democratized. What this means is that those who bear the consequences of agri-food and/or science and technology policy decisions must have a proportionate share in making these decisions (Harding 2001).

A quote from a delegate from Guinea who recently walked out of the W.T.O. trade talks in Mexico (September 2003) is reflective of both liberationist accounts of science and agri-food scholars' emphasis on the need to democratize science and technology policy and agri-food policies. The delegate was quoted as saying "Coming into this meeting everyone said, 'yes, cotton is an important question; yes, agriculture is important.' But when it came down to negotiations, our daily problems were ignored" (Becker 2003b). As suggested by this quote and by scholars interested in constructing more democratic sciences and food systems, a global agri-food system must be

responsive to more marginalized participants. The next section of this chapter will focus on the relevance of the recently failed W.T.O. talks and the implications for the generalizability of this study to other countries.

Relevance and Generalizability

On September 14, 2003, developing nations effectively shut down W.T.O. trade talks in Cancún, Mexico. Although this breakdown in trade talks is not viewed as momentous as the failure of talks in Seattle in 1999, this is the second time that a group of representatives from African, Asian, and Latin American developing nations have walked out of the W.T.O. meetings. These nations are referred to as the Group of 21, and are comprised of developing countries, including South Africa. The Group of 21 has organized to protest unfair trade conditions between developed and developing nations, especially in terms of agriculture. The group has called attention to the fact that agriculture is among the most protected sectors of trade for the world's wealthiest nations. According to the Group of 21 and other fair trade advocates, the wealthiest nations are estimated to provide $300 billion annually in subsidies to their own farmers, while maintaining high agricultural tariffs, blocking farm imports, and subsidizing farm exports (Becker 2003a). The representatives of developing nations argue that this contributes to an inequitable agri-food system.

Standards and standardization are part and parcel of global trade. Beyond the overtly unfair trade rules, actors in developing nations are well aware of the more subtle ways trade can create/foster imbalances. Thus, this dissertation provides an important set of ideas to help better understand the way technical details, especially as they are bound

up in international trading systems can promote or counter efforts to create a just and equitable agri-food system. The potential impact of this study will be discussed along three dimensions: what is, what may be, and what could be (Ward Schofield 2002).

Current and future W.T.O. meetings will likely witness further resistance from developing countries. In this context, it seems critical that additional studies be conducted in order to evaluate 'what is' the current situation of standards development and implementation in non-Western and Western countries. This includes an evaluation of the positive and the negative impacts of standards for a variety of agri-food networks. This study has examined the ways standards are conceptualized and operationalized in only one agri-food commodity network. Future studies need to be conducted across agricultural commodity sectors, as well as between countries. For example, a study of South Africa's primarily export commodities, such as seafood and fruit will most likely reveal similarities and differences in the operation of standards and standardization. In addition, further study needs to occur comparing the same commodity in different nations. Botswana and Namibia are both countries that export beef to the E.U. due to the Lomé Agreement. An assessment of the conceptualization and implementation of standards in these nations and the differences and/or similarities in their impacts would provide more information about the effect of export opportunities on developing countries.

This dissertation can also contribute to understanding 'what may be.' In other words, this study contributes to a broader understanding of current and future trends in agri-food trade and can contribute to designing future research that illuminates these issues as much as possible. Currently, developing nations are united in confronting what

they perceive as inequitable global trade. The Group of 21's criticisms have thus far been directed at changing policies. However, this study suggests that standards for an agri-food product can contribute to structuring global trade inequitably. Thus, future studies that focus on standards and standardization and trade should further explore how standards may promote inequitable or more equitable agri-food trade.

Finally, this work contributes to studying 'what could be.' There are clearly ways to conceptualize and implement standards that promote a more equitable food system. Thus, future research would purposively select sites based on what we know or expect to be ideal or exceptional on some a priori basis and then study these sites to see what is actually going on there (Ward Schofield 2002). In the context of this study, we would revisit moments where previously marginalized actors in the agri-food network have become active participants in the network, such as the 150 small abattoirs established in one province of South Africa.

Final Words

Standards are technical details that contribute to the construction of societies in some forms and not others. This means that standards are bound up in networks that co-construct who benefits and who does not benefit from the creation and implementation of standards. This dissertation explores the entire red meat commodity network, focusing on the production, processing, retailing, and consumption of red meat in South Africa. Standards are identified within every part of the network. For example, standards contribute to the co-construction of what is considered a good breed, a good farmer, a good processor, a good retailer, and a good consumer. The ways in which standards are

bound-up in these constructions are complex and variable. Thus, it is important to investigate the construction of standards, and the ways in which standards can differentially impact a group of actors. Standards cannot be overlooked. For marginalized members of the agri-food network in South Africa to prosper, their voices must be heard. Standards can be constructed in such a way that they are not deleterious to the marginalized actors. Moreover, if the South African government or other agencies are interested in assisting more marginalized participants, then they must recognize the role that standards play in the current system and work towards constructing or implementing standards in such a way that they actually assist these marginalized participants. In closing, this work should reinforce the assertion "that the shapes the world takes are conventional and revisable, if also eminently solid and full of consequences for unequally distributed chances of life and death" (Haraway 1997, 269).

APPENDICES

Appendix A

Selected International Food and Agricultural Standards Bodies

Organization:	The Function of the Organization:
Codex Alimentarius Commission (Codex)	Established in 1961, the Codex Alimentarius Commission, in consultation with the directors-general of the Food and agriculture Organization (FAO) and the World Health Organization (WHO), is responsible for making proposals on all matters pertaining to the implementation of the Joint FAO/WHO Food Standards Programme, the purposes of which are: protecting the health of consumers and ensuring fair practices in the food trade; promoting coordination of all food standards work undertaken by international governmental and non-governmental organizations; determining priorities and initiating and guiding the preparation of draft standards through and with the aid of appropriate organizations; finalizing those standards and, after acceptance by governments, publishing them in a Codex Alimentarius, either as regional or worldwide standards, together with international standards already finalized by other bodies whenever this is practicable; and amending published standards, after appropriate survey in the light of developments. http://www.codexalimentarius.net/index_en.stm
International Plant Protection Convention (IPPC)	The International Plant Protection Convention (IPPC) is a multilateral treaty deposited with the director-general of the Food and Agriculture Organization of the United Nations (FAO) and administered through the IPPC Secretariat located in the FAO's Plant Protection Service. Contracting parties to the IPPC number 110 governments. The purpose of the IPPC is to prevent the spread and introduction of pests of plants and plant products and to promote measures for their control. The convention provides a framework and forum for international cooperation, harmonization and technical exchange in collaboration with regional and national plant protection organizations (RPPOs and NPPOs). The IPPC plays a vital role in trade — it is the organization recognized by the World Trade Organization in the Agreement on the Application of Sanitary and Phytosanitary Measures (the SPS agreement) as the source for international standards for the phytosanitary measures (ISPMs) affecting trade. http://www.fao.org/WAICENT/FaoInfo/Agricult/AGP/AGPP/PQ/
International Organization for Standardization (ISO)	The International Organization for Standardization (ISO) is a worldwide federation of national standards bodies from some 130 countries. ISO is a nongovernmental organization established in 1947. The mission of the ISO is to promote the development of standardization and related activities in the world so as to facilitate the international exchange of goods and services, and to develop cooperation in the spheres of intellectual, scientific, technological and economic activity. The ISO's work results in international agreements that are published as international standards. http://www.iso.ch/
Organisation for Economic Co-Operation and Development (OECD)	The OECD provides its 29 member countries a setting in which to discuss, develop and perfect economic and social policy. Governments compare experiences, seek answers to common problems and work to coordinate domestic and international policies. OECD countries produce two-thirds of the world's goods and services, but it is not an exclusive club — membership is limited only by a country's commitment to a market economy and a pluralistic democracy. The core of original members has expanded from Europe and North America to include Japan, Australia, New Zealand, Finland, Mexico, the Czech Republic, Hungary, Poland and Korea. Many contacts with the rest of the world occur through programs with countries in the former Soviet bloc, Asia and Latin America — contacts which, in some cases, may lead to membership. http://www.oecd.org/

Selected International Food and Agricultural Standards Bodies (cont.)

Organization:	The Function of the Organization:
Office International des Epizooties (OIE) (World Organisation for Animal Health)	The main objectives of the OIE are to: inform governments of the occurrence and course of animal diseases throughout the world and of ways to control these diseases; coordinate, at the international level, studies devoted to the surveillance and control of animal diseases; and harmonize regulations for trade in animals and animal products among member countries. The OIE enjoys permanent working relations with more than 20 other international organizations, including the Food and Agriculture Organization of the United Nations (FAO), the World Health Organization (WHO), and the World Trade Organization (W.T.O.). http://www.oie.int/
World Health Organization (WHO)	The objective of the WHO is the attainment by all peoples of the highest possible level of health. Health, as defined in the WHO Constitution, is a state of complete physical, mental and social well-being, not merely the absence of disease or infirmity. In support of its main objective, the organization has a wide range of functions, including: to act as the directing and coordinating authority on international health work; to promote technical cooperation; to promote, in cooperation with other specialized agencies, where necessary, the improvement of nutrition, housing, sanitation, recreation, economic or working conditions and other aspects of environmental hygiene; to promote and coordinate biomedical and health services research; to promote improved standards of teaching and training in the health, medical and related professions; to establish and stimulate the establishment of international standards for biological, pharmaceutical and similar products, and to standardize diagnostic procedures; to foster activities in the field of mental health, especially those activities affecting the harmony of human relations. The WHO also proposes conventions, agreements and regulations, and makes recommendations about international nomenclature of diseases, causes of death and public health practices. WHO develops, establishes and promotes international standards concerning foods and biological, pharmaceutical and similar substances. http://www.who.int/
United Nations Economic Commission for Europe (UNECE)	The Economic Commission for Europe (UNECE) is the forum at which the countries of North America, western, central and eastern Europe, and central Asia come together to forge the tools of their economic cooperation. This large group of countries accounts for 64 percent of world production, 60 percent of total exports, and between 65 and 70 percent of the patents registered throughout the world each year. It is also responsible for 60 percent of the world's carbon dioxide (CO2) emissions. The main purpose is to harmonize the policies and practices of the ECE member countries. Such harmonization not only facilitates economic exchange investment and the integration of transport networks but also makes environmental procedures more effective. http://www.unece.org/
World Trade Organization (W.T.O.)	The W.T.O. is the only international body dealing with the rules of trade between nations. At its heart are the W.T.O. agreements, the legal ground rules for international commerce and for trade policy. The agreements have three main objectives: to help trade flow as freely as possible, to achieve further liberalization gradually through negotiation and to set up an impartial means of settling disputes. http://www.WTO.org/

Source: Adapted from the Institute for Food and Agricultural Standards (2000).

Appendix B

Questionnaire for Government and Industry Officials

1. Explain in detail what your organization/office does? (What role does your organization play with the South African red meat industry?)

2. What are the current key issues affecting the red meat industry?

3. How have these issues changed in the last 5 years?

4. How do you expect them to change in the future?

5. [If they have not already touched on then ask -] What are the biggest challenges your organization faces?

6. Are there particular standards that are impacting red meat production, processing, or distribution? [If no, what factors are impacting red meat production, processing, or distribution?]

7. From the perspective of your organization/agency, are red meat standards changing?

8. If yes, what do you see as the driving force in changing red meat standards today?

9. Who are the key players in standards setting?

10. Who are the key participants in standards implementation?

11. What groups are most involved and in what issues?

12. Are there distinguishable positions among the actors?

13. How could standards in the red meat industry (production, processing, distribution) be improved?

14. Are there things that need to be changed within the red meat industry?

15. Do you see standards setting and enforcement moving to the private sector entirely?

16. Who would be a person or group that I should speak with that is involved in some aspects of standards in the red meat industry?

Questionnaire for Commercial and Emergent Farmers

1. Describe your farm for me (size, herd, etc.)
2. What breed/type of cattle/sheep/pigs do you have on your farm?
3. What are the current key issues impacting you and your farm?
4. How have things changed since in the past 5 years?
5. How do you expect them to change in the future?
6. Are there particular standards/regulations that are impacting red meat production?
7. (If yes,) What do you see as the driving force of these changes?
8. From your perspective who are the key players in standards/regulations setting and enforcing?
9. How have you had to change your operation in order to satisfy regulations or achieve better production, higher quality, etc.?
10. What groups are most involved and in what issues?
11. Are there distinguishable positions among the actors?
12. Do you think your interests as a red meat producer are represented within the red meat industry?
13. (If yes) In what areas are your interest represented?
14. (If yes to number 10) How do you and other red meat producers make sure your interests are represented (among standards and regulations committees)?
15. How could standards in the red meat industry (production, processing, and distribution) be improved?
16. Are there things that need to be changed within the red meat industry?
17. Should standards setting and enforcement be done in the public or private sector?
18. Is there anything relevant to standards that I have not asked you that I should know about?

19. I am trying to get as wide a range as possible of different perspectives from red meat producers. Can you think of other producers I should speak with that would have a different perspective about the red meat industry?

Appendix C

Photo of City Deep Abattoir in Johannesburg, South Africa

Source: Photo taken by Elizabeth Ransom, 2000

Appendix D

Woman's Body Labeled as Different Cuts of Meat

Cited in *Vleis/Meat*, 1972, source unknown. Also cited in Adams (1990), source unknown.

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