



Graduate School of Development Studies

**Biofuel Production in South Africa:  
A Critical Analysis of the Government's  
Biofuel Industrial Strategy:**

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***Elrich Morne Strydom***  
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Members of the examining committee:

Dr Bram Buscher [Supervisor]  
Dr David Dunham [Reader]

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***Inquiries:***

Postal address:           Institute of Social Studies  
                                  P.O. Box 29776  
                                  2502 LT The Hague  
                                  The Netherlands

Location:                 Kortenaerkade 12  
                                  2518 AX The Hague  
                                  The Netherlands

Telephone:               +31 70 426 0460

Fax:                       +31 70 426 0799

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## List of Acronyms

ANC	African National Congress
ASGISA	Accelerated and Shared Growth Initiative for South Africa
BFAP	Bureau of Food and Agricultural Policy
BIS	Biofuel Industrial Strategy
CTL	Coal-to-Liquid
DDGS	Distillers Dried Grains and Solubles
DME	Department of Minerals and Energy
GDP	Gross Domestic Product
GHGs	Green House Gases
GSA	Grain South Africa
IFPRI	International Food and Policy Research Institute
R	Rand (South African currency)
RNRF	Rainbow Nation Renewable Fuels
SABA	Southern African Biofuels Association
SARPN	Southern African Regional Poverty Network
SASA	South African Sugar Association
SBM	Soybean Meal
WVO	Waste Vegetable Oil

## **Abstract**

With this paper I aim to conduct a critical discourse analysis of the South African Biofuel Industrial Strategy which was passed in 2007. South Africa has produced biofuels prior to the passing of the BIS, dating back to as early as the 1920s. I examine the history of biofuel production in the country and outline the historical discourse around biofuel production. The BIS renewed South Africa's commitment to biofuel production and outline the country's biofuel goals post 2007. The BIS was set up to coincide with other several other goals of other governmental. Land reform and land use restrictions were tied into the BIS, hoping biofuel production would assist emerging farmers on newly redistributed land; I examine the discourse around the BIS and look at its impacts on agriculture, land affairs, and biofuel production. Similarly, food security was made paramount in the BIS, leading to extensive biofuel production regulations, in effect preventing bio-ethanol producers from participating in the biofuel industry because of the food security concerns. This led to the examination of the biofuel industry where the paper compared the discourse of the BIS with the impacts of the strategy on the biofuel industry. I conclude by analysing the BIS and assessing its efficacy. The analysis will show that the strategy is too broad, too ambitious, and unfortunately therefore unworkable.

## **Relevance to Development Studies**

This paper looks at biofuel production in South Africa through a discourse analysis of the government's Biofuel Industrial Strategy. The discourse focuses on the environment, rural and agricultural development, job creation, and food security. The BIS addresses these core development studies concepts and I examine them further as they relate to the program of study and deal with aspects of environment and sustainable development.

## **Keywords:**

Biodiesel

Bio-ethanol

Biofuel

Discourse Analysis

Environment

Food Security

Land Reform

Maize

South Africa

Sugarcane

# Chapter 1

## Introduction

With concerns over the increasing global threats posed by climate change and the growing awareness of elevated levels of Green House Gases (GHGs) being a major contributor to this change, the call to find alternatives to carbon intensive fossil fuels used for energy has rapidly intensified. South Africa is the largest emitter of GHGs on the African continent, and one of the most energy intensive countries in the world. “Given its coal-based energy economy, South Africa is one of the highest emitters of greenhouse gases when compared to other developing countries, whether this is measured in emissions per person or per unit of GDP” (Winkler 2007: 27). South Africa is heavily dependant on coal for electric generation and transport fuels. Using its Coal-to-Liquid (CTL) technology, South Africa produces liquid transportation fuels from coal. This CTL process is extremely carbon intensive and generates from two to four times as much CO<sub>2</sub> as standard crude oil refining (Singh 2006). The country’s transportation energy costs are estimated at R100 billion (10 percent of GDP) while crude oil accounts for an additional 10 percent of South Africa’s total imports (Singh 2006). Therefore, there has been a particularly strong push in South Africa to find an alternative to fossil fuels.

One of the main alternatives under widespread consideration is biofuel. Biofuels are renewable fuels derived from organic sources. They range from bio-ethanol to biodiesel and biogas. Biofuels are considered the most feasible alternative to fossil fuels for several reasons. The biggest reason is their ability to easily transition into the existing energy infrastructure at a minimal cost and with few technological adjustments (Clancy 2008). Here I will only focus on bio-ethanol and biodiesel since they are produced as liquid transport fuels. Bio-ethanol is an alcohol-derived petrol (gasoline) substitute produced through the fermentation of the sugars and starches in plants (mostly from maize and sugarcane). Biodiesel is produced from the fats (oils) contained in plant seeds (mostly from soybeans, sunflower seeds, canola, etc).and is used as a substitute for diesel. Biofuels are already produced worldwide but are still produced at a rather small scale (not considering Brazil) compared to the level of energy production from fossil fuels.

### 1.1 The Biofuel Industrial Strategy

To facilitate the development of an alternative energy, the South African government developed the Biofuel Industrial Strategy (BIS) to outline the countries move from a reliance on expensive, imported, carbon intensive fuels to more diverse energy sources which include biofuels. The BIS, developed in December of 2007, signalled the government’s support for the development of biofuels and the beginning of the biofuel industry in South Africa. The BIS was developed by members of the Biofuels Task Team which consisted of



ministers from the agriculture, environment, land affairs, energy, science and technology, and the treasury departments (Mtwi interview 20 August, 2009). The BIS was formulated as a developmental strategy aimed at using biofuel development to achieve goals set forth by the various departments.

The Department of Minerals and Energy (DME) published the final Biofuels Industrial Strategy as an energy initiative focussed national development that will cover the Northern Cape, Free State, KwaZulu-Natal, Eastern Cape and Mpumalanga provinces (Accelerated and Shared Growth Initiative – South Africa (AsgiSA) 2007) (See **Map 1** for details). The BIS is aimed at developing linkages and creating partnerships along the value chain by focusing on agriculture and land affairs, addressing the food for fuel concerns, and promoting sustainable development (BIS 2007). The government believes that biofuels will attract investment to the rural areas, promote development, and alleviate poverty. Therefore, the Strategy will focus on agriculture and land affairs by promoting farming in areas previously neglected by the apartheid system, like the former homeland areas (Ibid 2007). The strategy aims to ensure food security by limiting which food crops can act as a feedstock for biofuel production, and the DME will be responsible for licensing the biofuel producers to ensure compliance.

**Map 1**  
“Map of South Africa”



Source: Africa Deluxe Tours

## 1.2 Justification for Research

The government's Biofuel Industrial Strategy is a comprehensive document which aims to tie biofuel production to rural agricultural development, food security, job creation, and etc. There are multiple actors involved in the biofuel production process across various sectors; the actors range from the farmers who grow the biofuel crops to the final producer who manufactures the biofuel. The BIS is the primary document shaping the discourse around biofuel production and affecting how biofuels are developed. However, there are counters to the government's discourse. The grain and sugar industries as well as academia challenge the way the government has framed the discourse. Therefore I examining the role of these actors, how they counter the discourse, and how they are affected by the government's broad biofuel strategy, by conducting a discourse analysis. This is the basis for the formulation of my research question

## 1.3 Reseach Question

How has the discourse of the Biofuel Industrial Strategy affected the promotion and implementation of biofuel production in South Africa?

I have posed the following three sub-questions to assist me in my attempt to answer the main research question:

1. What are the underlying factors that influence the biofuel discourse?
2. Who are the various actors and how do these different actors influence biofuel production?
3. How does the reality of biofuel production different from the discourse.

## 1.4 Research Methodology

### 1.4.1 Data Analysis

*Phillips and Hardy* define discourse as “an interrelated set of texts, and the practices of their production, dissemination, and reception, that brings an object into being” (Phillips and Hardy 2003: 3). They go on to explain that these “texts are not meaningful individually; it is only through their interconnection with other texts, the different discourses on which they draw, and the nature of their production, dissemination, and consumption that they are made meaningful” (Phillips and Hardy 2003: 4). This will be the basis of my analysis; I will focus on the different discourses and the nature of their production, i.e., how the various groups are influencing the implementation of a biofuel industry in South Africa. The government's Biofuel Industrial Strategy will be the main text used for the discourse analysis since this document is main driving force behind the biofuel industry in the country. The grain industry's voice will be represented mainly by Mr. Lemmer from Grain SA (GSA), the Southern African Biofuels Association (SABA), and the report written jointly by GSA and SABA entitled, “The Impact of Biofuel on

Food Security.’ The sugar industry’s opinions are voiced by Mr. van der Merwe and the article ‘South African Sugar Association: Comments on the national Biofuels Strategy.’ Numerous additional texts and the interviews are used to support and/or clarify points.

As Phillips & Hardy point out, “discourse analysis explores how texts are made meaningful through these processes and also how they contribute to the constitution of social reality by making meaning” (2003: 4). Using these definitions makes it clear why discourse analysis will be the most appropriate method of analysis for my research. More specifically, I will be using Social Linguistic Analysis combined with Critical Discourse Analysis as my primary tool of analysis. *Phillips and Hardy* define Social Linguistic analysis as:

“constructivist and text-based. Much of this work examines specific examples of text and talk such as recordings of conversations, interviews, participant observation, focus groups, and stories. Researchers focus on individual texts, broadly defined, relating them only marginally to the distal context in which they occur or exploring the power dynamics in which they are implicated. The goal of this work is to undertake a close reading of the text to provide insight into its organization and construction, and also to understand how texts work to organize and construct other phenomena. Common approaches to social linguistic analysis include literary analysis, theoretical analysis, and the micro discourse analysis commonly carried out in social psychology” (Phillips and Hardy, 2003: 22).

I will use this definition to particularly focus on the ‘construction of other phenomenon’ and examine how the Biofuel Industrial Strategy has impacted areas not traditionally associated with biofuels. This definition can be combined with *Norman Fairclough’s definition of Systemic Functional Linguistics*, which:

“claims that texts simultaneously have ‘ideational’, interpersonal and textual functions. That is, texts simultaneously represent aspects of the world ( the physical world, the social world, the mental world; enact social relations between participants in social events and the attitudes, desires and values of participants; and coherently and cohesively connect parts of texts together, and connect texts with their situational contexts” (Fairclough, 2003: 26).

The situational context is of specific interest to me, as it relates back to Phillips and Hardy’s concept of the ‘nature of production.’

The Critical Discourse Analysis will be used to more specifically look at how the centralized government controls the policy and how it is implemented. Since the government in South Africa is the driving force behind the establishment of the biofuels industry, it is vital to examine the government’s powerful influence on discourse and how the issues are framed. Widdowson explains critical discourse analysis as “linguistics with a conscience and cause, one which seeks to reveal how language is used and abused in the exercise of power...” (2004: 366). Therefore, I will look at how the government has

exercised its power in shaping the implementation of the Biofuel Industrial Strategy.

Drawing on van Dijk's work, Fairclough and Wodak explain that "discourse is so socially influential, it gives rise to important issues of power" (2004: 357). van Dijk defines Critical Discourse Analysis as "a type of discourse analytical research that primarily studies the way social power abuse, dominance, and inequality are enacted, reproduced, and resisted by text and talk in the social and political context" (2001: 352). As Gamson points out, "still closer to discourse analysis is the current approach to 'frames' (conceptual structures or sets of beliefs that organize political thought, policies, and discourse) in the analysis of political text and talk" (van Dijk 2001: 360). The way texts and discourses are framed have a causal effect. These causes may not have direct effects, but the various discourses have a variety of effects on the different interpreters (Fairclough 2003). As I pointed out earlier, the government's biofuel strategy affects many actors (different interpreters) in different ways. Therefore, I will use these analytical tools to examine how the government frames its arguments, and how these arguments have influenced the various actors. The analytical sections will look at what is produced by the discourse and what the effects of the discourses are on agriculture, land affairs, food security, and development.

#### ***1.4.2 Data Collection***

To conduct my research, I relied on primary and secondary sources. The primary sources consisted of interviews with representatives of the various actors involved in the biofuel industry (academia, agricultural organizations, government, and manufactures). Although I had no interviews with any of the biofuel manufacturers, I did communicate extensively with various companies over the phone and through email. My secondary data relied heavily on published journal articles; journal articles which provided a reliable, peer-reviewed, academic perspective on biofuel production in South Africa. I chose academic articles that particularly focused on the environmental issues, how biofuels relate to land use, development, food security, and production. I also used numerous reports and articles published by the various interest groups and the media. The reports represent the views of organizations like SABA (Southern African Biofuels Association), SARPN (Southern African Regional Poverty Network), Grain South Africa, SASA (South African Sugar Association), and other organizations potentially affected by the government's comprehensive Biofuel Industrial Strategy. I will use these texts as the basis for my analysis, using the discourse analysis methods outlined in the previous section.

For my primary data collection, I conducted four interviews. The interviews were designed to target academia, the government, and the biofuel producers. To get a better understanding of the academic point of view on biofuel production in South Africa, I met with Dr. Thomas Funke of the

Bureau of Food and Agricultural Policy (BFAP) at the University of Pretoria. The BFAP is an independent organization within the University that aims to “facilitated informed decision making by SA agribusinesses, policy makers, trade negotiators and farmers” (BFAP 2009) by developing various models and analytical report. Dr. Funke is in charge of running the biofuel model at the BFAP and has put together two important reports: The 2005 ‘Report on Bioethanol Production in South Africa, and the 2008 ‘Biofuels Report #3.’ These reports were invaluable in furthering my research. For a perspective on the grain industry’s connection to biofuels, I met with Mr. Wessel Lemmer of Grain South Africa (GSA). GSA, located in Bothaville in the Free State, represents and supports maize, soybean, sunflower, groundnut, wheat, barley, oats, and grainsorghum farmers across South Africa (GSA 2009). Mr. Lemmer is the Senior Economist in Market Research for GSA, and has written extensively on the grain industry’s involvement in biofuels and the biofuel associated food security concerns. To cover the sugar industry’s role in biofuels, I visited the South African Sugar Association (SASA) where I met with Mr. van der Merwe, External Affairs Director for the Department of Environmental Affairs and Renewable Energy. The SASA aims to “promote the global competitiveness, profitability and sustainability of the South African sugar industry” (SASA 2009). Mr. van der Merwe has written a critique of the BIS and is actively campaigning for changes to the BIS that will facilitate the sugar industry’s entry into the biofuels market. Lastly, to hear about the BIS from the source (the government), I met with Ms. Xolile Mtwla at the Department of Minerals and Energy. Ms. Mtwla was part of the committee charged with drafting the BIS, and now works in the licensing office, the office that is responsible for issuing petroleum manufacturing licenses to biofuel producers.

All of the interviews were recorded and later transcribed. Each interview lasted between one and two hours. Several subsequent emails were exchanged to follow up on additional questions and clarify statements made during the interview.

## **1.5 Chapters Outline**

In the following chapter I begin by outlining the history of biofuel production in South Africa prior to the 2007 Biofuel Industrial Strategy. I look at the history of production and examine the historical discourse around biofuel production. In the following chapters I look at biofuel production after the BIS and examine the current discourse. In chapter 3 the discourse around biofuels and land reform are analysed and in chapter 4 food security is addressed. Chapters 3 and 4 examines how the BIS is framed and how the discourse around the associated issues affect the implementation of the biofuel industry. Chapter 5 deals with current biofuel producers and how the BIS has impacted the development of the industry. The chapter analyzes biodiesel and bio-ethanol separately but compares both industries and how they are

impacted by the discourse in the BIS. I draw my conclusion in Chapter 6 and answer my research question.

## Chapter 2

# The History of Biofuels in South Africa

Biofuel is not a new or strange idea in South Africa. The sugar industry had been producing bio-ethanol long before the government passed the Biofuel Industrial Strategy (BIS) in 2007. For most of the 20<sup>th</sup> century the sugar industry was involved in bio-ethanol production with the government showing greater interest in renewable, domestic energy sources beginning in the 1970s. This chapter outlines the history of the biofuel production in South Africa prior to the passing of the government's Biofuel Industrial Strategy. I examine the historical discourse around biofuel production as a background to the following chapters dealing with biofuel production after the BIS.

### 2.1 The Beginning

Sugar cane derived bio-ethanol was used as a blend with petrol as early as the 1920s (BIS 2007; Saunders 1979). Although the bioethanol was later phased out during the 1960s because of low international oil prices (BIS 2007), the sharp rise of oil prices in the 1970s revived South Africa's interest in domestic energy sources, including a return to sugar cane based bio-ethanol and petrol blends. Although South Africa was 75% energy self sufficient due to its abundant coal reserves and its CTL technology, the steep rise in price of imported oil in 1973 coupled with ongoing threats of international sanctions on the apartheid state made South Africa realize the need for a further developed domestic fuel source (Ravnö 1979). Under the leadership of Chris Saunders, Vice-Chairman of the South African Sugar Association (SASA), the sugar industry began to seriously look at sugarcane based bio-ethanol production in the 1970s.

Mr. Saunders believed it was time for the sugar industry to take a more serious look at the possibility of the sugar industry's involvement in the fuel industry. In his address to the SASA during the 1979 Annual Meeting, Mr. Saunders stated that, "from the Industry's point of view we could make a meaningful contribution to the liquid fuel pool..." (Saunders 1979: 283). Depending on the extent to which the industry chooses to participate, Mr. Saunders believed that the sugar industry had the capacity to provide between 7 ½ to 15 percent of the country's liquid fuel requirements (Ibid 1979). Furthermore, the auto industry was forging ahead with its own research into alcohol fueled cars independently. Volkswagen already had a reliable ethanol engine in the well established ethanol market in Brazil, and in August of 1979, Volkswagen introduced its first alcohol car prototypes to South Africa. After attending the Volkswagen Energy Symposium and test driving a new ethanol powered vehicle, Mr. Eric Buchanan of the South African Cane Growers' Association wrote an article proclaiming, "South Africa Enters Alcohol Fuel Era" (Buchanan 1979: 365).

However, despite this seemingly positive shift in the industry's attitude towards its involvement in bio-ethanol production for transport fuels, the beginning of the 1980s experienced a fizzle in enthusiasm for bio-ethanol. The issue did not get traction again until 1986, thanks to two important events. Firstly, due to continued international pressure on the apartheid government and threats of sanctions, the South African government released the 1986 White Paper on Energy Policy. The White Paper emphasized the continued need for the country to reach a minimum level of fuel self-sufficiency and to the timely development of renewable fuels (Chance 1988). After the 1973 oil export embargo against South Africa, and continued threat of sanctions from Europe and the United States, developing domestic sources of energy safe from international influence became more important (Ravnö 1979).

Secondly, in 1986 the US and Canada imposed limited sanction on South Africa, leading to a loss of two important export markets for South African sugar (SASA Industry Directory 2009; Chance 1987; Lewis 1990). Due to an over-supplied world market, sugar prices were already low, but with the sanctions against South Africa, the industry had to face an additional loss for over 150,000 tons of sugar that it could not export (Chance 1987). Since sugar exports composed a large portion of South Africa's total exports, finding an alternative use for the product, immune to external influences like sanctions, drove the government and the sugar industry to re-examine the potential of bio-ethanol production (Lewis 1990).

Less than two years later, the South African Sugar Association had set up an experimental bio-ethanol production plant at Richards Bay in the Natal Province (Chance 1987; Lewis 1990), and was simply awaiting government approval to go ahead with production (Chance 1988). Later the same year the Minister of Economic Affairs and Technology, Mr. Danie Steyn, attended the opening of a small, on-farm, bio-ethanol production plant in Paddock, Natal, showing the support of government for the bio-ethanol projects ('Pilot Ethanol Plant Opened on South Coast' 1988). Addressing the SASA at the Annual General Meeting, Mr. Chance reaffirmed his support for bio-ethanol production as well, noting that ethanol is crucial to the security of the sugar industry and further expansion (Chance 1989a). He notes that "the ethanol project is the key to an expansion which would otherwise threaten the stability of the existing Industry by overexposure to the volatile export market (Ibid 1989a) and that "the ethanol project will provide an on-going renewable source of energy which can be maintained indefinitely" (Chance 1989b). Although not explicitly stated, it can be inferred that the "security" of the industry and an "indefinite" supply of energy refers to the continued threat of international sanctions against the apartheid state and the associated threat of energy shortages from oil embargoes.

To promote the development of domestic energy sources, the bio-ethanol project was framed in a less politically contentious manner,. Rather than expounding on the need to provide a domestic source of energy for the



apartheid government that is safe from international manipulation, the bio-ethanol project was instead framed as a project capable of domestic job creation, mainly for the black population. In his article, “Ethanol Plant to Provide Security and New Jobs,” Mr. Chance indicated that besides securing the domestic market, bio-ethanol will aid in the “need to both secure existing jobs in Natal and to increase employment in the province which had the highest level of unemployment in the Republic” (‘Plans for Ethanol Plant Discussed’ 1988: 292).

The promotion of job creation had been used as a justification for bio-ethanol production since the beginning of the bio-ethanol debate in the 1970s. Professor Woods of Rhodes University pointed to the labour intensity of sugarcane production and processing and the associated jobs that will be created due to an expanded sugar industry. He stated that “perhaps the most attractive reason for embarking on the production of alcohol from agricultural crops is that such a scheme is labour intensive. Thousands of employment opportunities would be created for the production of the crops...” (Woods 1979: 365). Mr. Kritzinger, the Vice-Chairman of the SASA also indicated that “the growing of sugar cane is labour intensive, and creating jobs in South Africa is accepted to be one of our highest priorities today. Growing cane for ethanol production could provide employment for tens of thousands of people” (Kritzinger 1985: 172). It was estimated that bio-ethanol production had the capability of creating from around 13,000 (Chance 1989a) or 14,000 (Chance, 1989b) to 20,000 new jobs in the KwaZulu and KaNgwane areas of Natal (Dewey 1989). Since job creation for the largely unemployed black population in South Africa was of such importance, framing the bioethanol debate as a means of job creation served not only to satisfy the local populace, but also as a way to improve South Africa’s image abroad.

## **2.2 Conclusion**

Although the situation is slightly different today, the same discourse is used to debate the merits of biofuel production in South Africa after the BIS. The BIS aims to address the concerns over employment and domestic energy that was raised historically, but also includes food security and development in the current strategy. The next chapters will examine the current state of the biofuel industry in South Africa and examine how the discourse affects the industry. Each chapter will deal with one of the foci of the BIS, i.e., land affairs, food security, and development. Chapter 3 starts by addressing the BIS and land affairs.

# Chapter 3

## Land Reform, Agriculture, and Biofuels

*“Biofuels development in South Africa is about rural development and the provision of opportunities to the rural poor by creating a market for their produce that would otherwise not exist” (BIS 2007: 13).*

### 3.1 Introduction

Biofuels is the product of an agriculturally grown feedstock. Farmers will be growing the feedstock on agricultural land in rural areas of South Africa. The government’s rationale is that the Biofuel Industrial Strategy (BIS) will stimulate the rural economy by increasing demand for agricultural commodities and that the “bioenergy benefits [will] accrue to a large segment of the farming population, creating broad-based development that could form the foundation for strong economic growth and social wellbeing” (Ejigu 2008: 154). However, in order to benefit from growing feedstocks for the biofuel industry, people must obviously have access to land. Access to land will allow smallholder farmers to participate in the biofuel industry. Ejigu sees smallholder production of bioenergy as a means of empowering farmers, expanding domestic markets, and generating better incomes for the farmers, leading to a rural economic transformation (Ibid 2008). Therefore the government tried to incorporate land reform goals into its Biofuel Industrial Strategy. The BIS outlines what land will be allowed to be used for growing the biofuel feedstocks; The BIS specifically targets the former homelands for biofuel production, focussing on emerging farmers and beneficiaries of the land reform program. This chapter examines how the BIS interacts with the land reform program, what the impacts are, and how Grain SA and SABA respond to this.

The chapter will be based on Phillips and Hardy’s concept of examining how texts produce an outcome. This will be tied to Fairclough’s concept of texts and their causal effects. Here I examine how one of the government’s policies impacts on the other, and how these policies impact those affected by it. In section 3.2 I will outline the history and current progress of land reform in South Africa. This section provides the background on which the subsequent sections will be based and the basis for the chapter’s analysis. Section 3.3 will focus specifically on land reform in the Free State. I limit the scope of the chapter to the Free State since the Free State is the main maize growing area of the country and would be the centre of the maize to bio-ethanol industry once the industry is established. Consequently, I will also look at how land reform in KwaZulu-Natal and the sugar industry has progressed in section 3.4. since the sugar industry will be the principle actor in the sugarcane based bio-ethanol industry. Section 3.5 will summarize my conclusions.

### 3.2 History of Land Reform in South Africa

*“In South Africa, land is presently not only one of the most defining political and development issues, but also perhaps the most intractable” (Thwala 2006: 57).*

The Biofuel Industrial Strategy has incorporated several land reform goals into the policy. <sup>1</sup>Since the new democratically elected government took control in South Africa in 1994, there has been a strong push to pursue policies aimed at achieving greater equality between the disparate groups in South Africa. The largest source of inequality between the races has been the unequal distribution of land. This division of land between the races began as early as the 17<sup>th</sup> century when the white settler starting making incursions deeper into South Africa. Although the segregation was initially through informal arrangements between the settlers and the ‘natives’, land was later forcibly seized by the white settlers through various wars. The formal system of government administered land segregation was not initiated until after the formation of the Union of South Africa. The Union signalled the beginning of the formal South African nation, comprised of the former Boer Republics, British colonies, and Indigenous lands, under one central, white controlled, government.

The new government wasted no time in formalizing the racial segregation of land, and in 1913 the Union passed the Natives Land Act, formalizing racially biased land ownership. “This legislation restricted African land ownership to native reserves where the principal mode of tenure was ‘customary’ and administered by traditional leaders” (Lyne and Darroch 2003: 65). These reserves were also the beginnings of the later formalized Bantustan homelands for the black populace (See Map 2). Through various subsequent legislation the system of segregation intensified as whites settlers got access to more land while the native black populations were pushed further into the homeland areas. As Moseley and McCusker point out, by 1994 South Africa “[was] easily one of the starkest examples of [land] inequity relative to population” (2008: 322). Under the apartheid government, approximately 87% of the land was owned by the white minority which comprised a mere 14% of the population (McCusker 2004). This huge disparity led to severe economic inequalities during the apartheid era and poses a huge barrier to integration (economically, socially, and racially) in the new democratic state.

There has been enormous pressure from society calling for redistribution, with the main driving force being the ANC led government (Ibid 2004). The

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<sup>1</sup> The introduction section dealing with Land Reform draws heavily from Strydom, E. (2009) ‘Land Reform in South Africa: Direct Regulation for Communal Property Associations and Sustainable Livelihoods’ for ISS Course 4204, Politics and Economics of Natural Resources Management.

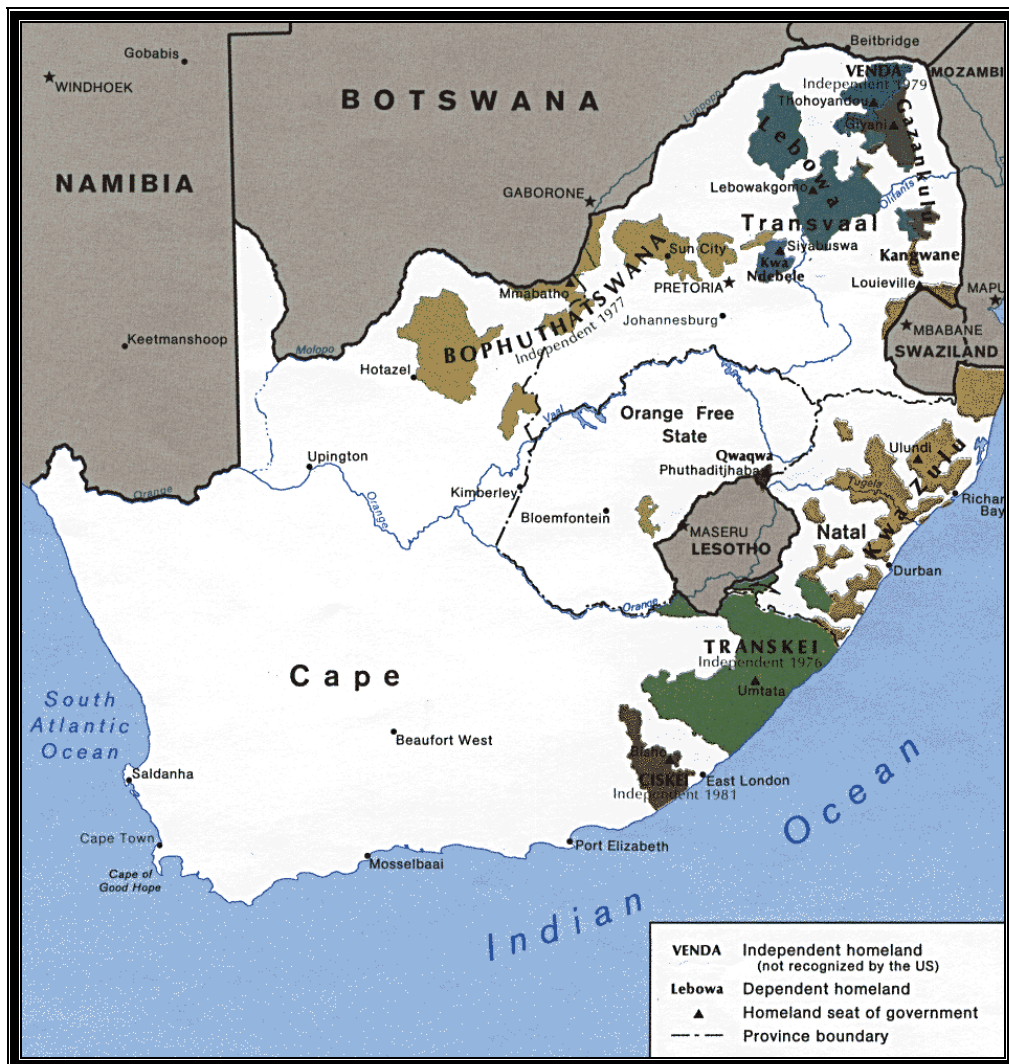
newly elected ANC government needed to fulfil the commitments it made in its 1955 Freedom Charter which promised to reverse the apartheid landscape (Twala 2006). The new government inherited a country where millions of black South Africans (the majority of the population) were forced to live on less than 13 percent of the land while 87 percent of land was owned by the state and some 60 000 white farmers (Ibid 2006). To rectify this inequality, the ANC led government had to undertake a hugely ambitious land redistribution scheme.

To avoid duplicating what happened in Zimbabwe, the ANC explicitly rejected any land confiscation policies. The ANC “agreed to protect existing property rights, and later adopt a ‘willing buyer, willing seller’ approach to land reform” (Hall 2004; Attfield et al 2004). To achieve this, the new government undertook a three pronged approach to land reform, Redistribution, Restitution, and Tenure Reform (Cliffe 2000; Hall 2004; McCusker 2004; Moseley and McCusker 2008). Redistribution aims to address the imbalance in land ownership between the whites and the blacks; Redistribution focuses on the landless poor and the farm workers and aims to provide land for productive (i.e. agriculture) or residential plots. The aim of the government is to redistribute 30% of white owned land to black ownership by the year 2014 (Moseley and McCusker 2008). Restitution aims to transfer land to the previously disadvantaged communities that lost land after 1913 when South Africa passed the Native Land Act. “ ‘Transfer to previously disadvantaged entrants’ refer to transactions that transfer farmland from white owners to new owners who were previously excluded from land markets on the basis of racial segregation” (Lyne and Darroch 2003: 75). Tenure Reform deals with the manner in which land is owned. It focuses mainly on the regularization of titles on land previously designated as Bantustans (the former black homelands) which is now integrated into South Africa.

South Africa’s constitution recognizes the rights of its people to achieve a sustainable livelihood, and as Attfield et al point out, “Land Reform would in many circumstances be the best and sometimes the only way to implement these constitutional rights” (2004: 411). However, the process of redistribution has been slow to make significant progress in the rural areas (Hall 2004). Approximately 45% of South Africa’s population is still rural, with 70% of the poorest people concentrated in these rural areas (Twala 2006: 69). Twala goes on to claim that the land reform program is heavily biased towards the urban areas, indicating that most rural land claims are still outstanding, which has done very little to transform rural property so far (Ibid). Furthermore, Eicher and Rukuni point out that very little attention has been paid to the provision of agricultural support services to the new landowners (Ibid). The government’s land reform policies have failed to address issues of credit, inputs supply, extension services, and market access (Cousins 2005). Although the government has set up several support programs to address these problems, most have been underfunded, poorly managed, and/or ineffective.

Most of the literature on rural development considers agriculture as the best means of reducing poverty and achieving a sustainable livelihood, and Lopez believes that “increasing agricultural growth may have a large positive impact on poverty” (Machethe 2004: 1). However, in order to benefit from agriculture, people must have access to land. Given that “access to land for production purposes is an essential requirement for the poor to enjoy the benefits of agricultural growth” (Machethe 2004: 7), delaying access to land is in effect delaying the rural poor’s ability to achieve a sustainable livelihood. Therefore, the Biofuel Industrial Strategy incorporated land reform goals into the biofuel policy. The following sections will look at the link between the BIS’s land reform and biofuel goals.

**Map 2**  
**“Map of Former Homelands”**



Source: University of Texas Libraries

### 3.3 Land Reform in the Free State

The Free State is the maize growing heartland of South Africa. Any policy affecting agricultural land use in the Free State is likely to have an impact on maize production, and maize is potentially one of the main grain contributors to the biofuel industry. Therefore, in this section I look at the BIS and its connection to land reform in the Free State, its effects on agriculture and emerging farmers, and how the grain industry has responded to it. I begin by reviewing land reform in the Free State and its impacts on emerging farmers, and end by analyzing how the BIS ties land reform into the biofuel strategy.

#### *3.3.1 Historical Overview*

Land redistribution in the Free State is a volatile issue. Balancing the needs of the previously dispossessed landless black population with the fear of white commercial farmers faced with land expropriation makes land redistribution in the Free State a politically and strategically complicated problem. Collin Murray writes an extensive article on land redistribution in the Free State and points out that redistribution has been small-scale and slow. He refers to the Free State's flagship redistribution projects, the settlement of the Botshabelo farms as an example. This area consists of approximately 12 000 hectares of land just west of Thaba Nchu (part of the former Bophuthatswana homeland). (See Map 2). However, this land had already been bought by the government back in the 1980s. The old government leased the land to white farmers through 1994 when the new government took over and put the land up for sale as 21 separate farms (Murray 1997). Counting these farm sales towards the 30% redistribution goal does little towards actual land redistribution; it only skews the government's statistics on the amount of land actually redistributed. In fact, by 1996, only one private property transfer had occurred, where a group of 4 farms located approximately 45km south of Bloemfontein, totalling 680 hectares, were sold to the Mangaung CC, a group of 8 individuals (Ibid 1997).

Of the three approaches to land reform, tenure reform has been the most widely implemented reform used in the Free State. However, this does not mean that tenure reform has substantially added to the amount of land transferred from white ownership to black ownership. As was explained in the previous section, tenure reform deals with land ownership issues on the former homelands. However, besides the tiny Qwaqwa Bantustan and the Thaba Nchu section of Bophuthatswana (See Map 2), there were no homelands in the Free State. So, dealing with Tenure Reform on these relatively small tracks of land is relatively small-scale when compared to tackling land redistribution. The Free State consists of vast grain growing areas, still mostly comprised of large, white-owned, commercial farms. Since land redistribution is conducted on the willing-buyer, willing-seller principle, it is very unlikely that a profitable white commercial farm owner will willingly sell his land. Conversely, the white owner that is willing to sell his land, in all likelihood, is the farmer that could not make his farm economically viable (due to poor land quality, lack of water,

high transport cost of getting the product to the market, etc). If an established (white) commercial farmer cannot generate a living from the farm, it is highly unlikely that an emerging (black) farmer will be able to turn the farm into a profitable business, especially given the weak government support for agricultural extension services.

Although the development of emerging farmers from the previously disadvantaged communities is quite necessary, it is important to look more closely at the BIS's stipulation that biofuels feedstocks can only be grown on former homeland areas, and assess whether this will actually facilitate in achieving a balance between the emerging and commercial farming sectors.

### ***3.3.2 Maize and the Biofuel Industrial Strategy***

As mentioned earlier, the Free State is particularly prolific in maize. In fact, this region produces maize in excess of local demand (Makenete et al 2007). However, most of this maize is grown on commercial, white owned land, not by emerging farmers or on former homelands. Since established commercial farmers are not allowed to participate in the biofuel industry, they are forced to export their excess produce to neighbouring countries at an export parity price (Lemmer interview 14 August, 2009). The farmers actually lose money when they export their excess maize because the local cost of production is higher in South Africa than what the farmers get for the export parity price. The European and American corn subsidies lower the world market price for maize, forcing South African farmers to export their excess production at a loss. The government's biofuel policy does not allow the excess maize to be turned into bio-ethanol, but as SABA and Grain SA argue, allowing maize to be used for bio-ethanol production expands domestic demand for maize, which benefits emerging farmers. Furthermore, as I pointed out, the domestic maize market is already saturated. Any additional maize that is produced locally will add to the surplus and thus lower domestic maize prices. This is clearly not a beneficial scenario for emerging farmers. The government's exclusion of maize from the strategy may actually have a negative impact on land-reform (Nieuwoudt 2007) by reducing the opportunities of emerging farmers to actively participate in the biofuels industry. The agricultural development aims of the BIS conflicts with the land reform aims in the BIS.

For the few lucky emerging farmers that have benefitted from land redistribution, they have actually been excluded from the biofuels industry by the land use stipulations in the BIS. Emerging farmers face a twofold problem: 1) They are growing maize which has been explicitly excluded from the biofuels industry by the BIS; and 2) they are farming on land previously owned by white farmers, not land located on the former homelands as the BIS requires. These emerging farmers then have to compete with established commercial farmers in a saturated domestic market, or export their product at loss. Emerging farmers on the former homeland of QwaQwa and the Thaba

Nchu section of Bophuthatswana also face these obstacles. Even though they are located on the former homelands, and could potentially participate in the biofuel industry, the land is part of the maize producing area and growing maize is probably the most profitable agricultural product available to them. However, since maize is excluded from by the BIS, they can not participate in the biofuels industry either, regardless of their location on a former homeland.

This highlights the necessity to critically look at the arguments around the biofuel policy to examine what its effects will be on the supposed beneficiaries. Here we can see that once the justification for the government's policies are examined and compared to the arguments made by the representatives of the agricultural sector, the effects of the governmental policy may not be what it intended to produce. The discourse contained in the BIS does not produce an outcome commensurate with its land reform and agricultural development goals.

### **3.4 Land Reform in the Sugar Industry**

I now switch to the sugar industry and analyze how the government's Biofuel Industrial Strategy has affected it. In this section I will look at how the government connected the BIS to land reform and how this impacts the sugar industry and the emerging farmers. The sugar cane farmers in KwaZulu-Natal face similar problems in their industry as the maize producers do which was highlighted in the previous section. Most of the sugarcane is grown in the KwaZulu-Natal province, thus I look at the history of land use and land reform in the province, how the BIS impacts land reform and the sugar industry, and how the sugar industry has responded. I begin by outlining the history of land use and land reform in KwaZulu-Natal and then move on to analyze how the BIS incorporates land reform goals within the sugar industry.

#### ***3.4.1 Historical Overview***

Much as in the maize growing Free State, land in the sugarcane growing KwaZulu-Natal was owned by white farmers. In his article, "The South Africa sugar industry," Lewis traces the history of the sugar industry from colonial times through the 1980s, outlining how the industry grew from an exclusively white owned colonial enterprise, to a more racially integrated modern industry. By the 1860s most of the Zulu population in the former Natal had been moved onto native reserves, making the land available to the whites. The industry expanded extensively with the investment of British capital during the colonial period, and by 1910 more than 23,000 hectares of land was under sugar cane production. In 1905 the government made an additional 80, 940 hectares of land available to white settlers in the Zululand area of northern Natal, further encroaching on native black land. The sugar industry continued to grow through the 1940s, but experienced a massive expansion due to a large increase in sugar demand during the post World War II years. This expansion



led to the sugar industry allowing black farmers to begin participating in sugar cane farming. By the 1980s, the sugar industry had expanded sugar cane production to 400, 000 hectares, yielding 2.37 million tons of sugar. Non-white farmers enjoyed the benefits of this expansion as well, increasing their contribution of sugar production from negligible amounts in the 1940s to 2 million tons in the 1980s (Lewis 1990). Although this amount is still tiny relative to the total amount of sugar produced by the whites, the black farmers' involvement in the sugar industry signalled the beginning of expanded integration between white and black sugar producers. By 2002, there were approximately 50, 000 producers growing sugar cane on over 434, 000 hectares. Of the 50, 000 producers, 96% were small-scale growers, and account for 20% of the total area under sugar cane production. These small-scale growers are mainly black growers (Bates and Sohkelä, 2003).

To increase the amount of land under small-scale sugar cane production, the sugar industry has actively participated in land reform within the industry to reflect the government's larger land reform program. According to the South African Sugar Association (SASA), "the South African sugar industry has long recognized the need to promote diverse ownership of agricultural land under sugar cane by competent farmers and have a range of support instruments in place to promote the sustainability of such initiatives" (SASA, 2009).

To achieve the government's goal of redistributing 30% of privately-held land to the previously disadvantaged, the sugar industry has set a goal of 78, 000 hectares of land for redistribution. The Inkezo Land Company is designed to facilitate the accelerated transfer of land to black ownership and sustainable farming within the sugar industry (Inkezo 2009). As a result, 17% of freehold land under sugar cane has already been transferred to black growers" (SASA 2009). The Inkezo Land Company is focused on the sugar industry for now, but may be used to assist land transfers in other agricultural industries once the company is fully operational (Inkezo 2009). According to the SASA, Inkezo has already transferred previously white owned land to more than 13, 000 black farmers (SASA 2009). The sugar mills have also contributed to land reform, initiating a program to redistribute land held by mill estates. Currently 120 new freehold farmers operate on 12, 000 hectares of land previously held by the milling companies (Bates and Sohkelä 2003). Thus, "the impact on livelihoods in rural areas in which sugarcane is produced has been significant, not only in terms of the impact of monetary income, but also in terms of the development of infrastructure (roads, industry, etc) and of economic multiplier effects" (Bates and Sohkelä 2003: 106).

These developments in the sugar industry and the progress of land reform in KwaZulu-Natal strategically place the sugar industry and the emerging farmers to benefit from the government's Biofuel Industrial Strategy. The agricultural goals of the biofuel strategy are linked with the agricultural goals of the land reform policy. In the following section I will analyse how the two

government policies are interlinked and how the sugar industry has been impacted by and responded to the policies.

### ***3.4.2 Sugarcane and the Biofuel Industrial Strategy***

*Only agricultural products grown in the previous homelands by historically disadvantaged farmers will qualify for support. Only biofuels plants that have been identified to assist in achieving the initial target will be supported and their location will be a condition of the issuing of a manufacturing license' (BIS 2007: 13).*

In his Comments on the National Biofuels Strategy, Johan van der Merwe from the SASA clearly outlines the problem the sugar industry faces in the following paragraph:

“The [Biofuel Industrial] Strategy seems to exclude feedstocks produced by commercial farmers, or by existing sugar cane farmers, from participating in the biofuels industry ... This condition excludes a major part of the current sugar industry participants from participating in an ethanol market, and may impact negatively on the ability of previously disadvantaged sugar cane farmers to benefit from ethanol production. It is important to note that sugar cane is not a nationally or even regionally, tradable commodity. Due to its bulky, low-value nature, transport costs dictate that it needs to be delivered and processed within a very specific radius. Previously disadvantaged sugar cane farmers on both commercial and tribal land are therefore completely dependent on its closest processing facility. As a consequence to this, an economically viable process and facility will probably need to be supplied by both commercial farmers and farmers based on tribal land” (van der Merwe 2008).

To further complicate the issue, the government excludes any land that is currently being used to produce food from being used to produce a biofuels feedstock (van der Merwe interview, 18 August 2009). Although this restriction is meant to promote agriculture in previously disadvantaged areas, such as the homelands, the restriction actually hinder the progress of emerging farmers instead of assisting them. As I explained in the previous section, the sugar industry has been more racially integrated than other traditional South African industries. Black farmers have been able to participate substantially in cane growing and contribute to sugar production throughout the apartheid years. However, they were using their land to produce sugar, a food product. Therefore, sugar cane produced on land previously owned by black farmers will not be allowed to be used as a feedstock for the biofuel industry. Conversely, none of the larger, traditionally white owned sugar cane farms will be able to participate in the biofuels industry, nor will any emerging farmer that has received redistributed land, since the land was previously used to produce a food crop.

The BIS leaves the former homelands as the only remaining area where sugar cane can be grown as a biofuel feedstock. Although KwaZulu-Natal has a much more extensive network of homelands than the Free State, by the very nature of their apartheid era design, these homelands consist of several small, non-contiguous and remote areas. Due to the nature of sugar cane, it has to be processed within 48 hours of being harvested before the sugar content of the cane starts degrading; due the relatively low price that sugar cane fetches and the high transport costs, it is not economical to transport it more than 30 to 40 km from where it is harvested (van der Merwe interview, 18 August 2009). Plus, sugar cane production from these former homeland areas only account for approximately 10% of the total sugar industry (Ibid 2009). As Tyala of the Central Energy Fund notes, relying on a feedstock to be produced on the former homelands takes longer than diverting surpluses from existing commercial lands” (Donnelly 2008). Sugar cane is grown on a 9 to 10 year rotation, meaning, the biofuel industry would have to wait at least 9 to 10 years for their feedstock to mature before they can produce their first commodity. It is therefore uneconomical for a company to build an ethanol plant that solely relies on sugar cane from these remote farms. So, as Mr. van der Merwe pointed out in his critique, an ethanol plant will have to be supplied by both commercial and emerging farmers for it to be economically viable (2008).

### **3.5 Conclusions**

Although the discourse of land reform contained in the BIS aims to incorporate biofuel development with wider land reform goals, the discourse remains an exogenous concept, not grounded in the reality of biofuel production. Through the critical reading and interpretation of the arguments around the land reform program and land use restrictions in the biofuel strategy, we can compare what the intentions of the policies were with that the actual effects are. Mr. van der Merwe highlights the sugar industries critiques of the government’s policies and Ms. Tyala explains how the policy is not feasible. Neither maize nor sugarcane farmers, both major contributors to the biofuel industry, cannot effectively participate in biofuel production because of the land reform goals in the BIS. Phillips and Hardy pointed to discourses constructing other phenomenon. Here we see that the discourse around land reform in the BIS has constructed a phenomenon not conducive to the implementation of a maize or sugarcane supplied biofuel industry. The framing of the BIS in terms of other political goals (land reform here) has led to an outcome not commensurate with biofuel production as outlined in the BIS.

## Chapter 4

# The Food versus Fuel Debate

*“The Strategy targets new and additional land and proposes that basic food crops be excluded in the initial states...[The Strategy] will ensure job creation, expanded agricultural production, and increased food supply” (BIS 2007:4)*

The food versus fuel debate took center stage during the drafting of the Biofuel Industrial Strategy in 2007. Although the debate is as old as biofuels, during the last few years opponents have come out strongly against using food stuffs to produce fuel. The global rise in food prices strongly supported their arguments that biofuels threaten food security and that it was unwise to rely on agricultural food crops to produce fuel. The South African government heeded those warnings and drafted a biofuel strategy that was very sensitive to food security concerns. However, as the chapter will show, the concern over food security was very much an exogenous debate that had no real merit inside South Africa. In this chapter I will examine the how the BIS addresses food security, analyze the arguments for and against using foodstuff to produce fuel, and look at how these discourses have affected the implementation of a biofuel industry. In section 4.1 I outline the debate and explain how food security relates to poverty and development. Section 4.2 and the subsections outline how the Biofuel Industrial Strategy has framed the biofuel issue in terms of food security and how this impacts the maize and sugar producers. Section 4.3 draws the conclusions together. I begin the next section with an overview of the debate and build the basis for my later analysis.

### 4.1 Biofuels and Food Security Concerns

Since biofuel feedstocks are usually grown on land previously used to grow food crops, a huge debate has arisen on the merits of using agricultural land to grow fuel versus food. Both sides argue about the validity of using agricultural land or agriculturally produced products as feedstocks for the biofuel industry. People on the one side vehemently oppose using food crops to produce a fuel instead of adding the food to the market, thereby lowering prices and increasing the poor’s access to food. Proponents of using agricultural products to feed the biofuel industry argue that the increase in agricultural demand will stimulate rural development and empower the rural poor to become more economically secure.

This food versus fuel debate has been raging on worldwide since the beginning of large-scale biofuel production in the 1970s. In South Africa the issue also took hold in the 1970s as bio-ethanol production started to increase. In 1979, Chance, the President of the South African Sugar Association (SASA) noted that there was a much publicized opposition to using maize and sugar cane to produce fuel and not food (Woods 1979). This opposition has continued right through to today’s debate on biofuel production. With a world

population much greater than it was in the 1970s and Global Climate Change possibly threatening food production capabilities world wide, the opponents of using food to produce fuel have drastically increased their opposition. People like Sugrue and Douthwaite, stating the position of the Regional Hunger and Vulnerability Programme, says, “in our view, the government needs to accept that, in its present form, biofuels will increase the extent to which the poor have to compete for food on which to live with the rich who wish to burn it to run their cars” (2007: 5).

The recent spike in food prices and the continued increase in food prices have also been blamed on biofuels by the critics. The issue made it all the way to the UN Conference on World Food Security, held in Rome in 2008. The true impact of biofuels on food prices was hotly debated; Biofuel production was blamed, and said to account for from 3% to 30% of the total food price increases (Donnelly 2008). A World Bank report attributed as much as 75% of the food price increase to biofuel production (Dauvergne and Neville 2009). If that is not enough, “the special rapporteur to the UN on the Right to Food is reported as saying that ‘the use of agriculturally productive soil for energy crops [is] a *crime against humanity*’” (Clancy 2008: 3). Opponents are unwilling to accept the idea that agricultural land may be switched from food production to something else. As Biofuelwatch et al warns, “the escalating demand for agrofuels will encourage small farmers to plant energy crops rather than crops cultivated to meet family needs and/or supply local markets” (2007: 22). The opponents of biofuels are adamant about their views and passionate about getting their message across. They are unwilling to accept the idea that agricultural land used to grow food could be switched to another non-food crop for environmental, economic, or political reasons. The opponents of biofuel feedstocks grown on food lots see any threat to food security as a threat too big to justify.

However, on the other side, proponents of biofuels point to the myriad of benefits that could accrue to the community that switches from traditional food production to biofuel production. To counter some of the arguments raised by the opponents of biofuel production, highlighted in the previous paragraphs, The International Food and Policy Research Institute (IFPRI) posed the question to itself, “Will crop production for biofuels compete with and drive out food production, thereby increasing food insecurity?” After thorough research and analysis, the IFPRI concluded that, “energy crop production does not need to lead to increased food insecurity...” (von Braun and Pachauri 2006: 7). One of the reasons they give to support this claim is the possibility of crop rotation. Farmer can grow food and energy crops on a rotation, storing excess food from one harvest for use during the next harvest, and using income generated from energy crops grown during one season to supplement needs during the next season.

On the issue of biofuels contributing to the rise in food prices, SABA points to the argument made by Marianne Fischer-Boel, EU Agriculture

Commissioner, that although biofuels play a marginal role in the rise of grain prices, it is not the main factor. She indicates that one of the main factors though, is simply a season of bad weather. Ms. Fischer-Boel admits that the EU had a bad season last year, directly impacting the harvest and the abundant availability of food (Makenete et al 2007). Although not a drastic shortage, there was a slight pressure on the supply, causing the demand to push prices higher. Secondly, and probably more importantly, academics point to the demand from East Asia as probably an even bigger factor to consider. A significant contributor to the rise in grain prices has been the change in dietary habits of the Chinese and Indian consumers. There has been a large increase in demand for beef and dairy products in India and China, and consequently a large demand for grain to feed the cattle used to supply those markets (Ejigu 2008) (Clancy 2008) (Ewing and Msangi 2009).

In South Africa though, the situation is unique. Established commercial farmers are pushing for biofuel production so that they can turn their surplus (agricultural produce in excess of local demand) into a profitable commodity. The BIS explicitly aims to use biofuel production to link the second economy with the first economy through agricultural development. This development is meant to benefit the rural poor and emerging farmers. Machethe notes that between 40 and 50 percent of South Africans are living in poverty. The National Treasury estimates that this amounts to about 14 million people who face food insecurity due to a lack of economic means to access food (2004). Although the South African government pursued and mostly realized food self-sufficiency, there are many people throughout the country that are considered food insecure. Most of these people are rural blacks living below the poverty line (Fraser et al 2003). Since most rural agricultural smallholders are net purchasers of food (Ewing and Msangi 2009), and these households spend more than 50 percent of their income on food (Fraser et al 2003), these people are considered to be living in poverty since they lack the financial resources to satisfy their basic food needs (Ibid). Thus, raising the poor's income allows them to access food even if they don't have the means to produce enough food at home. And as Clancy indicates, "since most people do not produce any or enough food to meet their needs, having sufficient financial assets to buy food may be a more fundamental determining issue than availability of food" (2008: 7).

Machethe points to agriculture as the best way to raise the income of the poor. He believes that:

Agriculture contributes to poverty alleviation at rural, urban and national levels in three ways: (a) reducing food prices; (b) employment creation; (c) increasing real wages; and (d) improving farm income. Results of studies conducted in several countries indicate that the "pro-poor role of agricultural growth can be dramatic, and much more effective than other sectors at reducing poverty and hunger in both urban and rural areas (2004: 3).

Ejigu shares this idea. She believes that the production of a fuel crop on agricultural land will actually encourage the production of food. Technical changes, increases in demand, and empowered farmers could actually contribute to an increase in food production alongside the growth of fuel crops. Ejigu makes the assertion that “if farmers are empowered, the food vs. fuel debate could [simply] be an academic one,” not rooted in reality (2008: 157).

Furthermore, most of South Africa’s rural areas are burdened by high rates of unemployment. Developing a biofuels industry could provide for new sources of income in the rural agricultural areas, significantly increasing livelihood opportunities (Ejigu 2008). Since Bresciani and Valdes point out, “the primary asset of the rural poor is labour” (Pingali et al 2008: 509), building an industry that can utilize that labour, reduce unemployment, and provide a sustainable livelihood is key. Therefore, the expanded market opportunities offered by growing biofuel feedstocks could raise the incomes of farmers and generate employment in agriculture, the biofuel manufacturing industry, and other related sectors (Ewing and Msangi 2009; von Bremen and Janerud 2008). The production of bioenergy empowers smallholders to become energy producers, provides a way to generate new cash incomes, and thus adds to rural economic development (Ejigu 2008). Therefore, any “predicted increase in food prices under biofuel expansion scenarios may be offset by the added benefit of income gains directly through job creation related to biofuel production” (Ewing and Msangi 2009: 522) (Koh and Ghazou 2008).

Since biofuel production is generally labour intensive (Clancy 2008) (Chance August 1979), and smallholder agriculture is also labour intensive (Cousins 2005), producing a commodity that employs rural labour may be a boon to rural agricultural areas that have abundant labour (von Braun and Pachauri 2006). Although biofuels may add to the world’s energy supply (particularly important in an energy starved country like South Africa), the true promise of biofuels lies in the possibility of “bettering the lives of thousands of poor rural Africans, by producing farm and factory jobs” (IRIN, 2006). The government estimates that biofuels will support the same number of jobs as the number of assembling jobs in the car industry (SouthAfrica.info 2006), and Pingali et al believes that these jobs could improve the livelihoods of the previously unemployed and underemployed labourers and thereby improve their livelihood and food security (2008).

## **4.2 The Biofuel Industrial Strategy and Food Security**

The basic premise of this chapter then is, “biofuel production could support food production” (Boddinger 2007) in South Africa and be an asset to food security, not a threat to it. Although the Biofuel Industrial Strategy is framed as a food security issue, the fuel vs. food debate is not relevant in South Africa.

The discourse has been constructed to respond to this exogenous concern and is not applicable to the South African situation. It was a debate imposed on South Africa from abroad (Lemmer interview, 14 August, 2009). The BIS clearly indicates that it made the decision to exclude maize from the strategy because of high food prices and concerns over food security in Mexico. The policy was not formulated based on the domestic threat of food shortages, but instead based on international concerns, not relevant to South Africa.

Since the government framed its biofuel policy in terms of food security, I will look at how the BIS approached food security, how this has impacted the main agricultural product that could be used to produce biofuels, and what the arguments and rationales are. I begin by looking at maize, a major food crop, a potential biofuel feedstock, and specifically addressed by the BIS, and then move to other food stuffs.

#### ***4.2.1 Maize and Food Security***

Due to the concern of using food stuff to produce fuel, the South African government has excluded maize from being used in the national Biofuel Industrial Strategy. Maize is by far South Africa's largest domestically produced food crop and South Africa consistently produces more maize than it is able to sell on the domestic market. Yet the government has excluded this important feedstock from contributing to the national biofuel industry. According to Nieuwoudt, since the government was facing a general election in 2009, it did not want to be seen as indifferent to food security issues. Therefore, the government explicitly excluded maize from the Strategy, and chose to frame the biofuel policy in terms of food security (2007).

According to Mr. Andrew Makenete, president of the Southern African Biofuels Association, "The government not once during talks expressed the possibility that maize would be excluded. It was supposed to be the foundation of a South African biofuels project." The decision to exclude maize on the basis of food security concerns was a complete surprise. (Nieuwoudt 2007). Mr. Makenete points to the fact that the country has the capability to produce about 12 million tons of maize per year, but local consumption has stagnated at 9 million tones (2007) of which only 45% is for staple food consumption (Donnelly 2008). During the last season, the commercial maize farmers produced over 12 million tones (close to 13 million tons), but domestic demand fell to below 9 million tons. Emerging farmers contributed a mere 516, 000 tons to the total (Lemmer 2009 interview). Similarly, during the previous season, about 3 million tons of maize was also left unsold (Sugrue and Douthwaite 2007). This has lead farmers to look for an alternative use for their product, i.e. bio-ethanol from maize (Funke et al 2005).



Mr. Makenete of SABA explains that any maize that is produced in excess of the local demand is actually traded at a loss to the farmer, doing little to generate rural incomes or to ensure food security. The local cost of maize production in South Africa is higher than the price of maize on the international market. Due to heavily subsidized agriculture in the US and EU, South Africa cannot compete competitively on the export market (2007). Every ton of maize that is exported receives the export parity price which is lower than the domestic cost of production, leading to a loss for the farmer (Lemmer interview, 14 August, 2009). Therefore, SABA believes that by including maize in the Biofuel Industrial Strategy,

this will immediately increase the medium term local demand to about 12 million tons. This increase in demand should [absorb the excess produce,] ease the volatility of the maize prices and ensure, in the long term, that the country's full maize growing potential is exploited. Arguably, this should contribute to food security by bringing food price stability" (Makenete et al 2007: 13).

Furthermore, about one third of the residues from the maize to ethanol production process can be converted into animal feed as Distillers Dried Grain and Solubles (DDGS), thereby re-entering the food chain, further adding to food security. This is explained in more detail in the following section.

Despite the fact that South Africa hadn't even started producing biofuels (on a large industrial scale) yet, the rise in food prices was blamed on biofuels. Because of this sudden rise in food prices and the concern over food security, maize was excluded from the list of biofuel feedstocks that the government was considering. Ms. Xolile Mtwa from the Department of Minerals and Energy who was part of the team responsible for drafting the Strategy explains that even though maize is usually over produced in South Africa, in 2007, the year the Strategy was drafted, South Africa had to import maize (Mtwa interview, 20 August, 2009).

There were two factors that contributed to South Africa's need to import maize. Firstly, the country was experiencing a drought, and maize production was hit hard (Makenete 2007; Biofuelwatch et al 2007), causing a drop in yield. Secondly, and probably more importantly, fewer hectares of maize were planted at the beginning of the season due to the low price of maize during the previous season (Lemmer interview, 14 August, 2009). Because of the low price of maize on the domestic market, and the risk of having to export excess production at a cost, farmers only plant a certain number of hectares each season based on the best guess of what the price will be the next season (Ibid). The lower the price, the fewer hectares of maize are planted; the price of maize was low in 2006, leading to fewer hectares being planted for the 2007 season, and ultimately resulting in a shortage of maize. Yet this reality is not reflected in the BIS. As Makenete pointed out, if maize is included in the Strategy as a feedstock for bio-ethanol production, the biofuel industry could provide a reliable market for maize, bringing price stability, and ensuring a more reliable and predictable maize harvest next season (2007). The price stability could

benefit the rural poor, emerging farmers, and facilitate the expansion of the biofuel industry. Here we see that excluding maize from the BIS actually counters the aims of the BIS.

#### **4.2.2 Dried Distillers Grains and Solubles**

According to the BIS, “biofuels production will also contribute to food security by increasing the availability of by-products that can be used for animal feed. These include protein oilcake, from biodiesel production from sources such as soya beans, which are currently being imported” (BIS 2007: 15). However, the BIS does not mention Distillers Dried Grains and Solubles (DDGS). DDGS is a by-product of the maize to bio-ethanol production process. After the complex sugars, like starch, have been removed for fermentation into bio-ethanol, the remaining residues comprise the DDGS. This residue consists of the protein, fat, and fibre not used to produce bio-ethanol, and can be processed into a high quality animal feed (Chance 1989a). Maize has been explicitly excluded from the BIS because of food security concerns, but as this section will show, maize may actually contribute to food availability through DDGS.

Mr. Makenete of SABA points out that about 30% of the maize used to produce ethanol is converted into the animal feed and returned to the food production process (2007). The use of DDGS in South Africa can serve two very important roles. Firstly, DDGS derived from maize can act as a supplement for imported soya oilcake. South Africa imports approximately 9 million tones of soya oilcake (Lemmer interview, 14 August, 2009) that is used as a rich source of protein in animal feed (Makenete 2007). If the biofuel industry uses maize to produce bio-ethanol, a plentiful source of protein rich animal feed can be produced locally, reducing South Africa’s reliance on an expensive import. Secondly, producing DDGS locally will not only add to local employment, it will lower the cost of meat and dairy products. Reducing the cost of one input (in this case, high protein animal feed) the overall cost of producing animal products like meat and dairy should be lower. As noted earlier, increasing people’s ability to purchase food, in this case by lowering the price, is one important way to increase their food security.

Ejigu does voice the concerns of those opposed to using food for fuel production by stressing the point that 70% of the food product is lost during the production of the biofuel (2008). This is true. As Makenete pointed out earlier, only about 30% of the maize used to produce fuel is returned as food, which does mean 70% of the food product is lost. However, in the case of South Africa, proponents of using maize for ethanol production only propose that the excess maize (the maize not absorbed by the domestic food demand) be used to produce biofuel. Since this maize (maize produced in excess of local demand) was not going to enter the local food chain, if only 30% of that maize is returned as a food product, there is already an increase in the total amount of food available. Therefore, based on Grain SA and SABA’s assessment, I can be

argued that the use of maize, a food product, to produce a fuel will actually add to food security in South Africa.

### ***4.2.3 Sugar and Food Security***

I now turn to look at that sugar industry. In the BIS, the government, in an attempt to ensure food security, limited the growth of biofuel feedstocks to land not previously used to grow food (van der Merwe interview, 18 August 2009). Although sugar may not be an important food crop like maize, it is nonetheless a staple food item and a significant agricultural product; any government policy affecting food production also affects sugar production. Therefore, in this section I will analyze how the biofuel strategy and the food security concerns have impacted the production of sugar and the sugar industry's participation in biofuels. I specifically focus on how the government policies on land reform, outlined in the previous chapter, converge with the biofuel strategy here, and impacts on food security concerns.

In South Africa, the sugar industry currently exports 50 percent of the total amount of sugar produced domestically (van der Merwe interview, 18 August 2009). In other words, the country has the capability of turning half of its sugar into fuel without touching the amount of sugar available to the domestic market. However, because of the land use restrictions concerning food crops (outline in section 3.4.2), most of the sugarcane currently produced would be excluded from the biofuels industry. The BIS excludes biofuel feedstocks that were grown on land used for food production, and as Mr. van der Merwe of the SASA pointed, almost all of the sugarcane that is grown is grown on land used for sugar production, a food. This food security concern in the BIS effectively eliminates the sugar industry from participating in the biofuel industry even though 50 percent of the produce is in excess of domestic demand.

The biggest threat to food security in the sugar industry is not potential biofuel production, it is actually the government's land reform program that poses the biggest threat. Mr. van der Merwe explains that land claims laid against commercial sugar cane farmers by previously disadvantaged people seeking access to white owned land, has acted as a significant deterrent to investment in sugarcane by the farmers. He makes the point that no farmer who stands to potentially lose his land in the next few years is going to invest time and money in labour to plant a crop that will not be ready for harvest until 9 years from now. If he loses the land, the new owner will benefit from the investment of the previous owner, while the previous owner only gets compensated for the land he lost, not the future income he would have received (interview, 18 August, 2009). Therefore, fewer farmers are investing in new sugarcane plantation, potentially reducing the future volume of sugar produced in South Africa. This policy goes directly against the aims of establishing domestic food security.

#### ***4.2.4 Wheat and Food Security***

As the previous section indicated, the government's various policy objectives tied to the biofuel strategy may actually go against the goal of establishing food security. In this section I briefly look at the case of wheat. Wheat was included as a feedstock in the biofuel strategy despite the restrictions placed on maize and sugarcane because of food security concerns. It is ironic that maize should be excluded while wheat is included as a feedstock in the BIS. South Africa is not wheat self sufficient and has to import about a million tons of wheat per year to meet domestic demand (BFAP 2008; Lemmer interview, 14 August, 2009). If the government was really concerned about food security issues, why not exclude wheat from the being used as biofuel feedstock as well?

### **4.3 Conclusions**

As the critical analysis of the food security concerns show, in South Africa biofuel production is driven predominantly by the need for rural development to enhance food security (Makenete et al, 2007), and since the agricultural sector is considered the best way to achieve household food security (Machethe 2004), it is important to look more closely at the possibility of biofuels actually contributing to food security instead of threatening it. Here we have seen that biofuels can actually contribute to development and economic growth, largely benefitting the rural poor and farming communities (Ejigu 2008), which, as Phillips and Hardy would point out, created an alternative phenomenon. Biofuels only threaten food security if they threaten the availability or access to food (Clancy 2008), but as Mr. Seiler, chief executive at SABA points out, a significant portion of the volume of food used to produce biofuel ends up back in food production (Donnelly 2008) in effect adding to the total volume of food produced.

Ms. Mtwala of the DME indicated that biofuel production needs to be balanced with the food security issue of not only South Africa, but also the neighbouring countries which rely on cheap South African maize imports (Mtwala interview 20 August, 2009). It seems then that the South African government is more concerned with ensuring regional food security than domestic food security. The government is not willing to forgo exporting maize and sugar to the neighbouring countries in favour of establishing a domestic bio-ethanol industry. If the government was truly concerned about domestic food security, wheat, a staple food crop, would also have explicitly been precluded from the biofuel industry. However, as it stands, a valuable food crop that is currently imported is allowed to be used to feed the biofuel industry. If anything, this is a threat to food security. Thus, the sheer incongruity of the way the BIS tries to achieve a balance between food security and biofuel production is unrealistic.

Ms. Mtwá did mention that the government would be willing to reconsider including maize as a biofuel feedstock if the maize industry could prove that it can consistently produce maize in excess of food demands (interview, 20 August, 2009). Based on the analysis provided, it seems pretty clear that the maize industry has, and can continue to supply a reliable biofuel feedstock above what is required to establish food security (2007). Currently the discourse over biofuel production does not reflect this reality.

## **Chapter 5**

# **The Biofuel Industrial Strategy and its impacts on Biofuel Production**

In Chapter 2 I looked at the history of biofuel production in South Africa. I now turn to biofuel production after the passing of the South African Biofuel Industrial Strategy in 2007. Although South Africa has a history of biofuel production, the current industry is in the early stages of development. The Department of Minerals and Energy has only licensed one facility so far. The licensed facility is a biodiesel producer; no bio-ethanol producers have been licensed. Currently biofuel production in South Africa is exclusively small-scale. The only large producers of bio-ethanol are industrial sugar processors like Illovo and Tongaat Hulett that make potable ethanol for the alcohol industry (van der Merwe interview, 18 August 2009) and industrial ethanol for chemical companies. No fuel ethanol is produced by any sugarcane growers or processors.

The following sections will examine why the industry is structured in this way. The government's policies will be critically analyzed and compared to the effects it is having on the current industry. I will look at bio-ethanol and biodiesel separately and analyze their related industries and how the BIS has shaped the industries' development. Section 4.2 will deal with biofuel production after the BIS, and examine how the discourse has affected the growth of the industry. Phillips and Hardy's concept of how texts produce an effect will be widely used in this chapter as a basis for examining the current biofuel industry. Their concept of the construction of other phenomena are used in section 4.3 to look at the difference between the bio-ethanol and the biodiesel producers and how they are affected by the government's policy.

### **5.1 Biodiesel versus Bio-ethanol**

The Department of Minerals and Energy (DME) has only issued one Petroleum Products Manufacturing License to a biofuel producer since the government passed the Biofuel Industrial Strategy. The single license was issued to a biodiesel producer for the production of biodiesel from soybeans. However, at this stage, South Africa is not self sufficient in soya production whereas it is in maize and sugar. But because of the excessive regulations in the BIS over food security and land reform goals (outlined in the two previous chapters), no company has been willing to invest in bio-ethanol fuel production for the transport market. There is one company that does produce bio-ethanol for use in bio-ethanol gel, but the DME has not licensed the facility yet. Although the BIS makes very little distinction between biodiesel and bio-ethanol in the policy, in reality there seems to be a predilection towards biodiesel production. In the rest of this section I look to how the government's policies have affected the producers in the biofuel manufacturing

sector and highlight the difference between the biodiesel and bio-ethanol industries.

### ***5.1.1 Biodiesel***

Rainbow Nation Renewable Fuels (RNRF) is the only biofuel producing facility licensed by the Department of Minerals and Energy (Mtwa interview, 20 August, 2009). As I have explained earlier, South Africa has ample opportunity to produce bio-ethanol from maize and sugarcane, yet the biodiesel industry has been able to establish itself where the bio-ethanol industry has not. I will examine this further in the next two sections.

RNRF, which is located near Port Elizabeth, Eastern Cape, will process soybeans into biodiesel. Soybean meal (SBM) and glycerine will also be produced as by-products. The biodiesel project aims to increase local soybean demand five fold, giving a significant boost to local commercial and emerging farmers, and expects to create 350 permanent jobs for processing the soybeans into biodiesel, while an additional 800 temporary construction jobs will be created during the construction of a new facility (RNRF 2009). Food Security concerns about using soybeans for biofuel production have been allayed by RNRF. The company explains that less than 20 percent of the soybean is used to produce biodiesel, leaving 80 percent of the soybean to be returned to the food chain in the form of SBM. The SBM will contribute significantly to the local animal feed supply, therefore increasing feedstock availability and reducing costs (SABC3 News 2008).

However, at this point South Africa is not able to provide enough domestically produced soybeans to feed the biodiesel plant and the company will have to rely on imports. Although this may not be a direct threat to food security, it is reminiscent of the issue raised in section 4.2.3. In that section I highlighted the point that although the BIS was framed in terms of food security, wheat, an imported food crop, wheat was allowed by the BIS to be used as a feedstock. Here, South Africa is not self sufficient in producing soybeans, a food crop, but the government has licensed the use of the food crop for biofuel production. The government even allows food imports to supply the company.

Currently there are four other firms that are serious contenders for entering the licensed biodiesel market in South Africa as well. Three of the companies are producing biodiesel from waste vegetable oil (WVO) while the other one is planning on growing its own feedstock. One of the WVO companies is First in Spec Biofuels (FIS). FIS Biofuels will source about 30 million liters of the WVO in South Africa and import about 10 million liters from abroad (FIS 2009). SATO Biodiesel also aims to produce biodiesel from waste vegetable oil, but plans to import most of its oil instead of searching for domestic sources (SATO 2009). The Cape Town based Biodiesel Centre also produces WVO derived biodiesel, and currently supplies Woolworths lorries

with biodiesel. The other company, PhytoEnergy Group, located in East London, Eastern Cape, will produce biodiesel from locally grown canola (rape seed). The biodiesel will be produced primarily for the export market. Most of PhytoEnergy's biodiesel will be sold to Germany as part of Germany's plan to reduce its carbon emissions by increasing its use of alternative fuels (Lemmer interview, 14 August, 2009).

Of these potentially licensed biodiesel producers, only one (PhytoEnergy) is planning on producing biodiesel from a locally grown agricultural product. This may meet the BIS's goal of rural agricultural development, but because the biodiesel is shipped abroad, it does not meet the renewable energy goals of the BIS. The other companies are relying on waste vegetable oil (WVO) for their feedstock. Although this process does create jobs (one of the goals in the BIS), no benefits are transferred to the rural agricultural sector where biofuels will have the most significant impact. WVO may satisfy the renewable energy goals of the BIS, but it does not increase demand for agricultural products and thus does not lead to increased agricultural production, jobs, or rural development. Yet the government has licensed a biodiesel producer and considers licensing more biodiesel producers, but has done little so far to promote bio-ethanol production.

### ***5.1.2 Bio-ethanol***

South Africa has a much larger capacity for producing bio-ethanol than biodiesel. Both the maize and sugar industry are stakeholders in the government's biofuel strategy as potential bio-ethanol producers, yet there are no licensed producers of liquid bio-ethanol fuel in South Africa. Several large sugar companies like Illovo and Tongaat Hulett are producing bio-ethanol for the spirits and chemical manufacturing markets, but not for the liquid fuels market. Tongaat Hulett has posted a page on its website addressing bio-ethanol production, indicating the company's interest in, and support for, bio-ethanol production (Tongaath Hulett 2009). However, there are no plans to begin production any time soon.

The lone producer of fuel bio-ethanol is Silversands Ethanol. The company is located in Hoopstad in rural North West Province, and manufactures bio-ethanol gel. The gel is thickened bio-ethanol that can be used as a cooking and lighting substitute for paraffin. Silversands grows and uses grain sorghum as the feedstock for the bio-ethanol production (Silversands Ethanol 2009). Grain sorghum was used primarily to avoid food scarcity concerns, and during its recent expansion, Silversands kept the food security issue at the forefront. In April of this year, the company planted South Africa's first commercial sugar beet crop destined for bio-ethanol production ('Silversands Ethanol became the 1<sup>st</sup>...' 2009). It also expanded into maize production, specifically growing the feedstock on previously underutilized land ('Silversands applies a unique solution...' 2009), thereby conforming to the BIS's land reform goals and avoiding food security concerns. The company is



sourcing all of the feedstocks from the local area and thus has created 31 jobs for previously unemployed persons <sup>2</sup>.

Even though Silversands Ethanol has complied with all the regulations in the Biofuel Industrial Strategy, the DME has not licensed the facility. All the government's discourse on biofuels has amounted to rhetoric. Even though the bio-ethanol producer has ensured that food security will not be threatened, it has created jobs, and produces a renewable fuel to meet the government's biofuel strategy, the government is less than enthusiastic about licensing the bio-ethanol producer. According to Phillips and Hardy, this can be considered a 'construction of an other phenomena.' By this, I mean the outcome of the biofuel strategy is not coherent with the discourse constructed by the government. In its licensing practice, the government has shown a preference for biodiesel over bio-ethanol even though no distinction between the two is made in the BIS. As I noted, several biodiesel producers are already in production and awaiting licensing, whereas only one company is producing bio-ethanol for bio-ethanol gel which does not require licensing. No one is willing to (or able to due to the BIS regulations) to invest in establishing the bio-ethanol industry.

## 5.2 Conclusions

Although the aim of the BIS is framed in terms of food security and jobs creation, neither one of these is reflected in the DME's biofuel licensing. There is a disjoint between the discourse and what is actually occurring. The DME has issued the manufacturing license to Rainbow Nation Renewable Fuels for their production of biodiesel from soybeans. However, South Africa does not have the capacity to supply enough soybeans to RNRF at this stage to support the industry. RNRF will have to import soybeans to supplement the shortage of domestic feedstocks (Lemmer interview, 14 August 2009). If one of the

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<sup>2</sup> There are also two bioethanol gel companies located in the greater Durban, KwaZulu-Natal area. Biocorp (manufacturer of Bioheat ethanol gel) and GreenHeat both produce ethanol gel from sugarcane ethanol supplied by Illovo (Naird interview, 19 October 2009; Bell interview, 19 October 2009). Illovo makes industrial grade ethanol from the molasses produced during the sugar manufacturing process which it then sells to various chemical companies (Illovo 2009). The commercial production of ethanol gel has led to the creation of 33 jobs at GreenHeat (Bell interview, 19 October 2009) and 40 jobs at Biocorp (Naird interview, 19 October 2009). Although these jobs are directly related to the production of ethanol gel, several indirect jobs have been created along the production line (i.e., transporting the ethanol from Illovo to the ethanol manufacturing companies, producing the ethanol at Illovo, etc.). In Cape Town, SAFE operates as a small-scale bioethanol producer. The company only produces ethanol gel in 200 liter batches as needed and only employs one person. SAFE also receives the ethanol from a chemical supplier, but does not know where the ethanol is sourced (SAFE interview, 19 October 2009). None of these companies are producing bio-ethanol themselves or are considering producing bio-ethanol for the transport fuels market.

goals of the BIS is to create jobs by stimulating the rural agricultural sector, relying on imported feedstocks is counterproductive. As the chapter on Land Reform explained, the biofuel industry will create most of the jobs, not in the actual manufacturing of the biofuel, but in the agricultural sector where the feedstock is grown<sup>3</sup>. On the other hand, as the previous sections noted, bio-ethanol production would meet the government's goals outlined in the BIS. Bio-ethanol feedstocks would not threaten food security; it would contribute to rural agricultural development, and provide a renewable domestic energy source. Yet, the licensing of biofuel plants doesn't reflect this. The licensed biodiesel producer does not seem to meet the goals of rural development and job creation, or food security, yet the government has licensed the facility. There seems to be a predilection towards biodiesel production and an unstated disincentive to produce bio-ethanol. The government's discourse is not congruous with its actions.

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<sup>3</sup> Ms. Mtwa from the DME does note that RNRFF will only be allowed to import its feedstock for up to 5 years while the South African soybean farmers can increase their yields to meet the company's demands (interview, 20 August 2009).

## Chapter 6

### Conclusions

The previous chapters conduct a discourse analysis of the South African Biofuel Industrial Strategy (BIS). The analysis aimed to answer my Research Question: ‘How has the discourse of the Biofuel Industrial Strategy affected the promotion and implementation of biofuel production in South Africa?’. I used discourse analysis to analyze the arguments around the government’s biofuel strategy, how the biofuel producers responded to this, and to look at how the BIS impacted the development of the biofuel industry. The discourse analysis draws on Gamson’s concept of analyzing how text and speech are framed and is combined with Phillips and Hardy’s concept of social linguistic analysis of how the nature of the text are produced and how they produce an outcome. Using van Dijk’s critical approach to discourse analysis I examined how the discourse in the BIS was framed, how the BIS influenced the discourse around biofuels, and critically examined the outcome. I used this method to particularly look at the interplay between the BIS and the three main issues addressed by the BIS: land use, food security, and biofuel production. Each one these topics were addressed in a separate chapter and analyzed using the above mentioned methods.

Although South Africa had a history of biofuel production (outlined in chapter 2), the country has reinvigorated its plans for biofuel development by formulating the Biofuel Industrial Strategy in 2007. The strategy outlines the future progression of biofuel development in South Africa while tying in additional development goals to the BIS as well. The first one of these additional development goals that I examined was land reform. Chapter 3 extensively examined how land reform goals were connected to the BIS and how these impacted on the implementation of the land reform and BIS goals. The analysis showed that the land reform stipulations were hindering the implementation of the BIS and its goal of assisting emerging farmers by promoting rural development.

I then looked at the issue of food security and how the framing of the BIS in terms of food security affected the implementation of the biofuel strategy. The analysis showed that the concern over food security was an international concern over biofuel production in general, which had no real merit in South Africa. South Africa is food secure already and even exports a significant amount of maize and sugar. Instead of using the agricultural surplus in the country to manufacture biofuel and meet the renewable energy goals of the BIS, the food security concerns were addressed in the BIS by significantly limiting the amount agricultural produce that was allowed to contribute to biofuel production. This in effect excluded maize completely from the BIS and

significantly limited the sugar industry's ability to participate in the biofuel industry.

In the last chapter of analysis (Chapter 5), I looked at the current biofuel industry and examine how the discourse contained in the BIS influenced its development. The discrepancy between the biodiesel and bio-ethanol industries are analyzed and compared to the discourse on biofuel production contained in the BIS. The discrepancies between the biodiesel and bio-ethanol industries show the government's favour for biodiesel. The DME has licensed a biodiesel producer even though the company does not meet the land reform, food security, or rural development goals contained in the BIS. Even though the analysis of the potential bio-ethanol producers (the maize and sugar industries) have proved that bio-ethanol can meet the goals of the BIS, no allowances have been made to facilitate the development of the bio-ethanol industry.

Based on the analysis conducted, I believe I can answer my research question. I asked:

How has the discourse of the Biofuel Industrial Strategy affected the promotion and implementation of biofuel production in South Africa?

My analysis leads me to conclude that the discourse of the Biofuel Industrial Strategy and the way the issues are framed, have led to an unworkable strategy that hinders biofuel production in South Africa instead of promoting it. The discourse in the BIS has framed the issues in a manner that appeals to the poor and previously disadvantaged communities, but does little to actually promote the implementation of biofuel production. The BIS tries to incorporate land reform, food security, and rural development into the BIS (issues that are important to most poor South Africans), but this leads to the strategy being very broad, ambitious, and effectively unworkable. The incorporation of land reform goals in the BIS not only limits the implementation of the BIS, it actually negates the effectiveness of land reform. As chapters 3 and 4 showed, the land use restrictions limit the ability of emerging farmers to benefit from the production of biofuels. The land use restrictions and food security concerns severely limit who can participate, and what land can be used, to produce biofuels.

Furthermore, the analysis of the current biofuel industry has revealed a disjoint between the discourse over biofuel production in the BIS and the licensing of biofuel producers by the DME. The previous chapters showed that bio-ethanol could meet the various requirements of the BIS, yet the DME has shown preferential treatment to the biodiesel industry. Biodiesel producers are not meeting the land reform goals or addressing the food security concerns laid out in the BIS, yet the DME has licensed a biodiesel producer and is looking at

licensing others as well. Although the biodiesel producers are meeting the renewable energy goals of the BIS, none of the issues preventing the bio-ethanol industry from developing has prevented the DME from licensing the biodiesel producer. Thus I can conclude that the implementation of the Strategy and structure of the current industry does not reflect the discourse contained in the Biofuel Industrial Strategy.

## **6.1 Further Research**

According to Ms. Mwa of the DME, the Biofuel Industrial Strategy will be reviewed on an annual basis to monitor its progress. Last year was the first year the BIS was implemented and thus has only been reviewed once. The progress report has not been published yet, but it would be interesting to compare the government's assessment of the BIS with the findings of my research.

Due to time and word count restrictions there are several areas that I did not research. In particular, I did not examine why the government has shown a preference for biodiesel production over bio-ethanol production. I recommend that further research be conducted to examine this and explore the underlying political and economic factors.

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