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THE MICROECONOMICS OF COMPETITIVENESS:

ANALYSIS OF COMPETITIVENESS OF CLUSTERS BASED ON THE DIAMOND MODEL OF MICHAEL E. PORTER

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BIOPHARMACEUTICAL CLUSTER IN GOIAS - BRAZIL

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1. INTRODUCTION

The biopharmaceutical sector plays a key role in the economic development of the Brazilian heath industry as a catalyst for improving the health conditions of the population.

This article describes and analyzes the Bio-pharmaceutical industry sector. We start by presenting key characteristics of the Brazilian market and the country's macroeconomic, political, environmental and industry trends. The research focuses on the state of Goiás, within the context of the Diamond model. The bio-pharmaceutical cluster is mostly concentrated in the state capital (Goiânia) and metropolitan region (Aparecida de Goiânia) as well as in the state (city of Anápolis). The research presents physical, political, economic and environmental characteristics of the state, as well as data pertaining to the evolution of the bio-pharmaceutical sector and its competitiveness.

Along the study, classical components of the diamond model are approached in the state of Goias as a whole as much as in the industrial area of the city of Anapolis.

The latter part of this document will present the SWOT analysis, along with in -depth analysis and recommendations for the bio-pharmaceutical industry of the state of Goiás.

On one hand, there is evidence that the studied cluster has contributed to the development of the region. It should be mentioned that local companies are becoming very well respected in the generic drugs businesses, recognized by the high degree of innovation, with manufacturing

processes updated with worldwide quality practices. A strong signal of the sound managerial evolution of those firms in the cluster is the interest they have aroused in international players; some mergers and acquisitions have already taken place.

On the other hand, some problems were exposed by the analysis; local pharmacy schools are not prepared to form enough workforce for the industry; there is still a strong dependence upon imports of active ingredients; academia represented by educational institutions and industry are worlds apart. Anyway, the large and still growing market of generic drugs, in Brazil and abroad, make things worth, justifying all the energy demanded in this research.

2. BRAZIL: CONTEXT

Characterization of the region based on macroeconomic and political conditions is important, not only because it suggests opportunities for economic development and long range industry potential, but also introduces a discussion of the increase in productivity and bio-pharmaceutical industry competitiveness in Brazil.

The Federative Republic of Brazil is the only country in South America that was colonized by Portugal. It is the fifth largest country of the world, with 8,547,403.5 square kilometers. There are 23,086 kilometers of borders with other countries, of which 15,719 kilometers are land borders and 7,367 are sea limits. Brazil has borders with all countries in South America except Chile and Equador, and the Atlantic Ocean spreads from the delta of the Oiapoque River in Orange, North, to Arroyo Chui, South.

According to the 2010 census, Brazilian population is 190,732,694 inhabitants. This meant an increase of 20,933,524 people compared to the 2000 census, indicating an increase in the Brazilian population of 12.3% in that period. The growth in the previous period was higher, corresponding to a 15.6% increase between 1991 and 2000. The 2010 census also showed an increase in the urban population for the previous period, with an increase from 81% in 2000 to the current 84%.

The Brazilian Federative Republic is currently divided into 27 administrative and political federative units, comprised of 26 states and the Federal District. The Executive branch is run by an Administrator elected for a four year mandate. The Judiciary power is run by state courts of first and second instances for common judicial matters. The Federal District shares

common characteristics with the state and municipal administrations, except that unlike the state members, it cannot be subdivided into other cities. On the other hand, the Federal District can collect city and state taxes.

Cities and states have public organization statutes, and as such, have the same obligations and enjoy the same rights as any Brazilian and foreign person or organization, as set forth in the Brazilian Constitution of 1988.

The Federative units are organized into five geographical regions – Midwest, North, Northeast, South and Southeast. This geographical organization has legal implications and was first proposed by the Brazilian Institute of Geography and Statistics (IBGE) in 1969. In addition to regional proximity, the Brazilian Institute of Geography and Statistics took into account the natural aspects in the division of the country, such as climate, topography, vegetation and hydrology. For this reason, the regions are also known as "natural regions of Brazil"; these are intended to facilitate the interpretation of statistics and general data, deploy management systems for public functions of common interest and serve as a guide for the implementation of public policies at federal and state levels.

The regions, even though defined under the law, have no legal statute, nor do citizens elect representatives for the geographical region. There is, therefore, no political autonomy for Brazilian regions as is found in other nations.

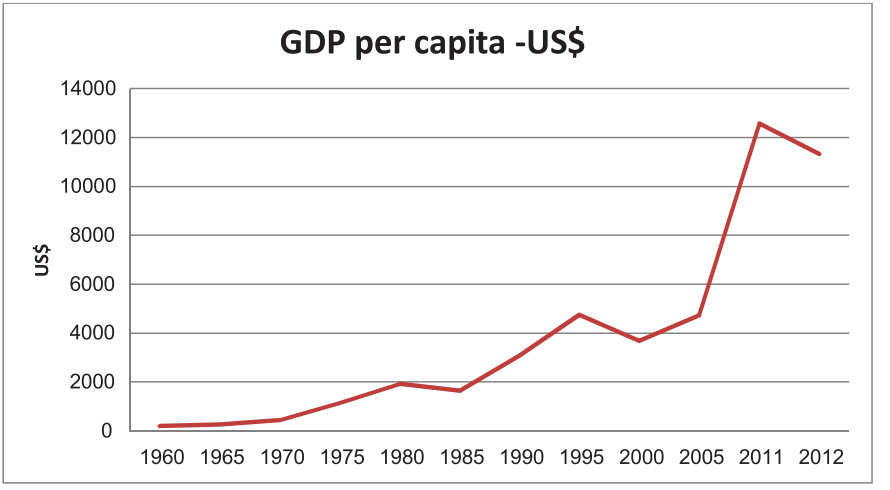
With an area of 1,606,371.505 square kilometers, the Midwest Region (where the state of Goiás is located) is a large territory, the second largest region in Brazil in terms of geographical area.

Brazil is the largest economy in Latin America (and second only to the United States in the American continent), the sixth largest economy at market rates of exchange, with a Gross Domestic Product of 2.25 trillion dollars in 2012 (World Bank, 2013) and the seventh largest economy on the planet in Purchasing Power Parity, according to the International Monetary Fund and the World Bank.

Per capita GDP is US$ 11400, putting Brazil in the 63rd place, according to World Bank data (Figure 1.1). The country has large, developed sectors such as agriculture, mining, manufacturing and services, as well as a significant labor market. Brazilian exports are booming, with export products that include aircraft, electrical equipment, automobiles, alcohol, textiles, footwear, iron ore, steel, coffee, orange juice, soybeans and beef, among others. The country has been expanding its presence in international financial and commodity markets and is part of the group of five

emerging economies called BRICS countries (Brazil, Russia, India, China and South Africa).

Figure 1.1 – Brazilian GPD per capita



Source: World Bank

Brazil enjoyed significant economic and social progress in the first decade of this century, and is on track to a socially inclusive growth with environmental sustainability. Since 2003, 22 million people have improved their social and economic status and a stable economy has been built, allowing the country to overcome the world economic crisis of 2008-2009. It is the only large country with average income that managed to combine economic growth with a reduction of social inequality. Brazil is making progress towards environmental sustainability, and deforestation of the Amazon is declining. The country has managed to reduce levels of infant health problems, and access to basic education is now virtually widespread. Brazil will likely meet almost all the Millennium Development Goals by 2015. The country has also become an important voice in the debate on international development issues and shares its wealth of innovative experiences globally (World Bank, 2012).

Macroeconomic risks are the result of possible significantly worsening conditions in the global economic perspective. Although this may lead to a slowdown in economic growth, the risk of further negative impacts on the Brazilian economy is mitigated by the country's large foreign reserves,

the soundness of its financial system and the strength of the domestic demand. Brazilian authorities also have to deal with challenges related to the domestic inflationary pressures, while trying to minimize the negative impact of external economic downturn (World Bank, 2012).

Other factors that have been discussed extensively in business and politics are: the decrease in industrial performance; increased economic importance on Brazilian export products with low added value; and critical issues in terms of the country's infrastructure, notably in logistics and energy. A study shows that there was a decrease of approximately 0.9% per year in Brazilian industrial worker productivity from 2000 to 2009, whereas in the agricultural, mineral and services there was an increase of 4.3%, 1.8% and 0.5% per year, respectively (IPEA, 2012) [1]. According to the study *The power Sector and Sustainability in the 21st Century: Opportunities and Challenges*[2], about 8% of the electricity consumed in Brazil is used by the country to produce iron ore, steel products, aluminum ingots, iron alloys and for the production of pulp and paper – low added value exports that do not create jobs and have a high social and environmental impact. According to this study, Brazil wastes an enormous amount of energy that could be harnessed for development. For instance, energy losses in the electricity transmission system of the country are 20% - one of the highest rates in the world.

Brazil has a highly decentralized federal system. Governments at the state and municipal level account for over 50% of expenditure in the public sector, being the main providers of education, healthcare, infrastructure and public safety services. Regulations strictly define the allocation of powers of taxation, expenditure responsibilities and mechanisms for transfers between the three levels of government (federal, state and municipal). State and city tax revenues are supplemented by a system of intergovernmental transfers, primarily through revenue sharing rules laid down by the Constitution, based on a set of automatic systems for distributing these revenues. Such rules ensure transparency and autonomy, maintaining political interference at a distance (World Bank, 2012)

Brazil has undergone a series of government reforms that began in the Lula era (2003-2011), and continued with the succeeding government. We emphasize in particular changes in laws on such matters as income dis-

1 IPEA – Institute of Applied Economic Research is a public federal organization linked to the President's Secretary of Strategic Subjects. The research provided by the organization provides technical and organizational support for the government public policies and initiatives for the economic development of the country.

2 See www.internationalrivers.org/node/7525.

tribution, improvements in the efficiency of the education system, reform of the Administrative Council for Economic Defense - CADE, the implementation of an environmental management policy, biodiversity conservation, initiatives to mitigate climate changes, and the Growth Acceleration Program - PAC, all explained in detail below.

Bolsa Família is a program that directly transfers income and benefits families in poverty and extreme poverty across the country. It is the centerpiece of the Brazilian Government's social protection strategy. Created from the combination of various programs of supplementary income that previously existed, it now reaches about 12 million beneficiary families (48 million people, about 25% of the population) with a budget of about 0.4% of GDP Brazil. A series of studies has confirmed its results and its significant impact on the reduction of poverty – 20% overall reduction in poverty and inequality since 2001. The Brazilian government intends to have reached over 800,000 eligible families by 2013. Moreover, thanks to an increase in benefit coverage variables - 3-5 children up to 15 years - the government plans to incorporate 1.3 million new children in the program (World Bank, 2012).

The federal government implemented a number of programs and initiatives to improve public education and access to the system. For higher education, the Program of Support for the Restructuring and Expansion of Federal Universities (REUNI) seeks to increase access and retention in Universities and Colleges. The goal is to double the number of students in undergraduate courses in a period of ten years with an additional enrollment of 680,000 at the undergraduate level. In addition, the government offers a number of scholarship programs and funding for higher education, ranging from undergraduate to postdoctoral.

Law No. 12.529/11 created the Brazilian System of Competition Defense - SBDC. This new legislation is a milestone in the consolidation of institutions that promote the development of the Brazilian economy. The increased effectiveness of antitrust policies resulted, mainly from to the analysis of mergers and acquisitions, in the requirement of prior submission of M&A operations. These must be submitted to the Administrative Council for Economic Defense-CADE before the case is submitted to the authorities. In the past, Brazil was one of the few countries in the world that analyzed mergers post-facto. CADE has up to 240 days to review mergers, which can be extended for another 90 days in the case of complex operations. The new law combats unwanted practices and conducts that

hinder competition and stipulates penalties of up to 20% of the revenue in the economic activity under investigation. Penalties are never less than the calculated damage to the market (CADE, 2012).

Improving the efficiency and effectiveness of the environmental management system is a key priority for the Brazilian government. It is of paramount importance that the government ensures the adherence to environmentally sustainable practices, which are challenged by the need for economic development and the increased use of natural resources and investments in infrastructure. Accordingly, the country has proposed to the UN Conference on Climate Change a reduction of greenhouse gas emissions of 38% to 42% through voluntary efforts.

In line with the challenges and continued work of the previous administration, the federal government has set ambitious social and economic goals for the coming years, in coordination with state and local governments. The Government of Brazil proposed significant growth for the country through increased investment, increased budget savings and maintaining fiscal discipline. The Growth Acceleration Programs I and II focused on improving infrastructure, with target investments of R$ 1.4 trillion between 2007 and 2014. PAC is the main social program of the government, focused on goals for eliminating extreme poverty and benefit 16 million people by 2014 (World Bank, 2012).

2.2 STATE OF GOIÁS

Goiás is one of the federal units that comprise the Midwest. Its territorial extension is 340,103 square kilometers (size equivalent to Germany), which corresponds to 4% of the country's territory. According to the Brazilian Institute of Geography and Statistics – (IBGE, 2012), the state's population is 6,154,996 inhabitants (2012) in 246 cities. The state is located in the center of the country. Its geographical position places the state in direct contact with the North, Northeast, Southeast, Midwest and the Federal District. There is an extensive network of highways, railways, ports and airports.

The climate is predominantly tropical with two distinct seasons: a dry season (May to September) and a rainy season (October to April). The average temperature varies between 18 º and 23 º C. The highest temperatures occur in the months of September and October and may reach up to 39 ° C. Lowest temperatures occur between the months of May and July, reaching, and may drop to 4 º C in a few selected places.

The predominant vegetation in the state is the '*cerrado'(savannah)*. Rainforest remnants of the Atlantic forest can also found in areas near Goiania, Anapolis and other cities in southern Goiás. The state's water system consists of a huge amount of streams, rivers and aquifers (groundwater). Goiás is drained by three major river basins: the Paraná basin, the Araguaia-Tocantins basin and the São Francisco basin. It is part of the Guarani aquifer, one of the largest bodies of water in the world.

Research development for technology is funded in the state through the Foundation for Research Support of the State of Goiás - FAPEG - and the Department of Science and Technology of the State of Goiás – SECTEC. These organizations' mission is to contribute to the promotion of research in the state of Goiás.

Table 1.1 – Industrial Structure of Goias

Goiás State: industrial structure Share of the main industrial activities, 2002-2010 (%)		
Activities	2002	2010
Extraction	7.90	6.26
Transformation industries	92.10	93.74
- Food and beverage	45.07	36.05
- Mining	19.51	11.09
- Automotive and agriculture machinery	0.92	9.71
- Clothing and shoes	13.37	9.31
- Chemical (fertilizers)	2.37	6.55
- Alcohol	2.88	8.24
- Pharmaceuticals	3.30	4.22
- Others	12.59	14.83

Source: Instituto Brasileiro de Geografia e Estatística (IBGE, 2012)

Goiás has about nine megawatts of power supply. 90.33% of that is generated by hydroelectric power plants, 7.28% by thermal power plants, 2.34% for Small Hydropower - SHP - and 0.05% by Central Hydroelectric Generators - CGHs.

Goiás is the ninth largest Brazilian economy (IBGE), with a GDP of R$ 75.275 billion that corresponds to 2.5% of the national GDP. Per capita income is US$ 5,900. The service sector is predominant, corresponding to

60% of the wealth produced in the state. This includes trade, both wholesale and retail, and real estate activities. The industrial sector corresponds to 26% of the state's GDP and agriculture, 13%. The pharmaceutical industry (the subject of this article) accounts for 4,22% of the state's GDP in 2010 (Table 1.1).

Goiás has a network of ports, roads and railways. Its road system spans 24,970 kilometers of highways and roads (52% of which, paved) connecting the 246 cities in the state. The Paranaíba-Tietê-Paraná Waterway begins in Porto de São Simão for the flow of grains produced. Porto de São Simão is located on the right bank of the river Paranaíba in southern Goiás.

Porto Seco Centro Oeste S/A is a customs terminal for public use for storage and handling of goods imported or intended for export. It plays a key role in the trade operations for agriculture, metallurgy, construction and pharmaceutical chemicals, forest products, minerals, consumer goods (food and textiles) and durable goods (automobiles and electronics), among other sectors. It is located in the city of Anapolis and integrates seamlessly with other consuming centers in the country.

The Multimodal Logistics Platform of Goiás is being implemented in the city of Anapolis, and will consolidate the city as one of the most important distribution centers in the country. This project provides airfreight terminals, international cargo airport, hub services, administrative centers, and road freight and rail freight terminals. The platform is located at an intersection in an area adjacent to the Anapolis Agroindustrial District - DAIA – and the Porto Seco Centro-Oeste. The venture will have links with two railroads, the Central Atlantic and North-South lines.

3. EVOLUTION OF THE PHARMACEUTICAL INDUSTRY IN BRAZIL

The development of the Brazilian pharmaceutical industry was initially directly related to public health policy, health practices and the combat or prevention of infectious diseases. The Brazilian government encouraged and provided funds for the first pharmaceutical companies to be constituted, and stimulated training of the first Brazilian scientists, in addition to developing and producing vaccines, serums, drugs and public health programs.

The pharmaceutical laboratories supplied the domestic market, and even exported to Europe until the national pharmaceutical industry rea-

ched its peak in the 1940s. Growing demand, lack of protective measures such as intellectual property, trade secret and patents also contributed to an increased concern by multinational companies with regard to the Brazilian pharmaceutical industry.

As early as the 1950s, the Brazilian pharmaceutical industry struggled when the market opened to foreign capital organizations. These companies held great expertise, significant financial resources and were well versed in the practices of protectionist practices which hitherto were not applied in the country. Despite the significance of the early history of the Brazilian pharmaceutical industry, some critical moments have defined the structure and competitiveness of the domestic pharmaceutical industry.

When the multinational companies first arrived in Brazil, they brought expertise, technology and substantial investments in R & D and marketing. These companies imposed standards and quickly conquered the market, buying smaller domestic firms, making important partnerships, and mostly dominating the domestic market in order to adhere to the legal and stricter regulations of their countries of origin.

A number of subsequent interventions and government regulation ensued, lacking integrated policies developed for the pharmaceutical industry.

According to Fiuza and Lisboa (2001), the Central Drugs – CEME was created in 1971 by the Federal Government. Its duties included, among others, promoting scientific and technological development, human resources skills and training and linkages with other government mechanisms in order to favor domestic firms with purchases and financial stimulus.

In 1970 the National Institute of Intellectual Property – INPI was created to remedy one very negative aspect: absence of national patent protection regulations, meaning any innovation developed in Brazil could be copied by any firm that had expertise and technology.

The opening of the market in the early 1990s and the passing of patent law in 1996 and the law of generic drugs in 1999 are important milestones in the history of the domestic pharmaceutical industry; they completely changed the structure and competitiveness of the industry.

According to Nishijima (2003), with the opening of the market and the Real economic plan in the years between 1994 and 1999, the exchange rate appreciated and the government changed its foreign exchange system. As a result, active ingredients and drugs could be purchased more easily.

Nishijima (2003) notes that the patent law came into force on May

14, 1996 but it would not be applied retroactively. This meant that only new products or patents sold in other parts of the world, which were not previously produced in Brazil, had patent rights recognized in the country. Thus, products produced in the country did not suffer significant changes in their costs or processes.

In an attempt to generate credibility in the substitution of the drugs and provide access to people with low purchasing power, the Brazilian government passed

Law n. 9767 of Generic Drugs in February 10, 1999, bringing new requirements and guidelines for the national pharmaceutical industry. The intention of the production of generic drugs was to provide access to safe drugs, since similar drugs would not be able to provide this. Until 2014, similar drugs were not subject to the same tests as generic drugs; they ended up increasing the use of reference drugs due to low marketing, advertising and credibility (Santos, 2010).

According to the National Health Surveillance Agency - ANVISA[3], generic drugs must have the same dose and dosage form as the reference drug. They also need to be administered by the same route and with the same therapeutic effect, be as safe as the reference product and may be interchangeable therewith (Santos, 2010).

According to the National Health Surveillance Agency - ANVISA, interchangeability is defined as the safe replacement of the reference drug by its generic equivalent; this should be guaranteed through bioequivalence tests. The interchangeability can only be held by a licensed and responsible pharmacist. The pharmacy or drugstore must register the prescription.

In Brazil, generics account for approximately 25.6% of unit sales in the whole pharmaceutical market. In countries like Spain, France, Germany and the UK, where the generic market is already more mature, the participation of these drugs is 30%, 35%, 60% and 60% respectively. In the U.S. market, where generics have over 20 years of existence, the share of the market corresponds to roughly 60% share of the volume (Progenericos, 2012)[4].

Currently on the market, there are generic drugs for the treatment

3 The National Agency of Sanitary Surveillance (ANVISA) was created by Law No. 9.782, of January 26, 1999. It is an independent regulatory agency, whose area of expertise is not restricted to a specific sector of the economy, but rather all sectors related to products and services that may affect the health of the population.

4 Founded in January 2001, the Brazilian Association of Generic Drugs – Pró-Genérico brings together the leading laboratories working in the production and marketing generic drugs in the country. It is a nonprofit organization whose main mission is to contribute to the improvement of access to medicines in Brazil through the consolidation and expansion of the generics market.

of diseases of the cardiovascular system, drugs against infectious diseases, digestive / metabolic, central nervous system, anti-inflammatory, hormonal and non-hormonal, dermatological, respiratory, urinary system, sexual, ophthalmic, anti-thrombosis, anemia, parasitic, cancer and contraceptive drugs (Progenericos, 2012).

All the changes described in the domestic pharmaceutical industry were important for the construction of the current scenario. However, the law of generics, combined with Brazilian industrialization history, with research limited to copying technology and medicine production, was an important determinant for the model industry currently in place in Brazil (Santos 2010).

Drug use in Brazil ranks ninth among the pharmaceutical markets worldwide, with a sales turnover of approximately R$ 26 billion in 2006. There are about 600 pharmaceutical companies in the country, including laboratories, importers and distributors (Gadelha, 2008).

According to Santos (2010), despite being a segment with significant revenues and physical production, the current share of the industry in international trade is still limited (0.5% for medicines and 0.2% for drugs). The official laboratories account for 3% of the volume and 10% of national production. The concentration can be expressed in numbers: the 10 largest companies account for 43.6% of the domestic market, and four of these are Brazilian firms - Aché, EMS, Medley and Eurofarma.

There is a high concentration of the supply structure for both global and Brazilian pharmaceutical companies. A limited number of foreign capital companies control specific therapeutic classes. These coexist with smaller national laboratories that are mainly focused on the production of generic medicines, as well as public laboratories and technology-based small businesses with limited competitiveness (Santos, 2010).

Twenty percent of foreign firms command a 80% share of the domestic market, and of the fifteen largest at the time just three (Ache, Prodome and Biolab) had national capital, Most of the production in the domestic market was already dedicated to drugs (Queiroz, 1993).

The twelve largest companies held 45% of the domestic market, while the remaining 539 accounted for the remaining 55%. Currently we can see a trend towards lower concentration, though this cannot be considered relevant enough to assert that there is a change in the industry concentration, as shown in the Table 1.2.

Table 1.2 - Sales volumes of the fifteen largest pharmaceutical companies in Brazil

	Total sales in period	July 2009*	July 2010*	
		28.200.000.000	33.500.000.000	Total
1	EMS PHARMA	1,900.000.000	2,300.000.000	4,200.000.000
2	MEDLEY	1,500.000.000	1,950.000.000	3,450.000.000
3	SANOFI-AVENTIS	1,800.000.000	1,900.000.000	2,700.000.000
4	ACHE	1,650.000.000	1,850.000.000	3,500.000.000
5	EUROPHARMA	1,130.000.000	1,350.000.000	2,480.000.000
6	NOVARTIS	1,120.000.000	1,300.000.000	2,420.000.000
7	PFIZER	1,030.000.000	1,125.000.000	2,155.000.000
8	BAYER SCHERING PH	790.000.000	835.000.000	1,625.000.000
9	ASTRAZENECA BRASIL	695.000.000	825.000.000	1,520.000.000
10	NEO QUIMICA	330.000.000	790.000.000	1,120.000.000
11	MYCOMED PHARMA LTD	590.000.000	675.000.000	1,265.000.000
12	BOEHRINGER ING	625.000.000	665.000.000	1,290.000.000
13	SANDOZ DO BRASIL	540.000.000	660.000.000	1,200.000.000
14	BIOLAB-SANUS FARMA	560.000.000	625.000.000	1,185.000.000
15	D M INDÚSTRIA	535.000.000	590.000.000	1,125.000.000
	TOTAIS	14,795.000.000	17,440.000.000	52%**

Source: IMS Health, 2010

* Rounded figures

** Share of group as a percentage of total sales of the 50 largest companies, 2009/2010

The physical production of drugs in Brazil has been growing. In the last quarter of 2008 and in the midst of the global economic turmoil, the sector grew 18.5% over the same period last year. The figures show that the generic drugs contributed positively to this increase in production. In 2008, generic drug manufacturers marketed 277.1 million in retail units against 233 million in 2007. Note that these numbers refer to the number of drugs sold, not financial figures, which in this case are affected by the high volume of imports and the lower unit price of generic drugs (Cunha, 2009).

3.1 Brazilian Regulatory Structure of Pharmaceutical Industry

Brazil is one of the world's most highly regulated countries. Some publications estimate that there are about 181,000 regulations and laws (Lago, 2007). The pharmaceutical industry is faced with a multitude of laws, the

most relevant being the Health Law, the Intellectual Property Law, the Law of Generic Drugs, the Constitution Act of ANVISA, the Regulatory Act of the Pharmaceutical Market Regulation, the Act establishing the People's Pharmacy, the innovation Law and the Public Private Partnership Act. In addition, tax law, labor law and the Public Registry of Companies are also relevant for understanding the Brazilian regulatory structure.

The pharmaceutical industry is highly affected by the intellectual property (IP) law, due to the constant innovation and social importance of drugs and medicines. The Law was passed in May 14, 1996 under number 9279, regulating the rights and obligations concerning intellectual property. Although the law is relatively recent, the 1988 Federal Constitution ensures that the authors of industrial inventions hold a temporary privilege for the use as well as for the protection of industrial creation, property of trademarks, company names and other distinctive signs, in view of the social interest and the technological and economic development of the country.

In addition, Provisional Act 2.006/99 was converted into Law No. 10.196/01, adding to the Industrial Property Law, among others, Article 229c, which stipulates that pharmaceutical patents can only be granted by the INPI after review and consent from ANVISA.

The National Health Surveillance Agency - ANVISA has the power to protect the health of the population through the sanitary control of the production and marketing of pharmaceuticals and other products. It was created on January 26, 1999 by Law No. 9782 for the National Health Surveillance system, and creates the National Health Surveillance Agency - ANVISA and other measures. Note that in 2010 the National Health Surveillance Agency - ANVISA signed a cooperation agreement with the Food and Drug Administration – FDA in the United States to obtain access to previous American investigations by that organization regarding drugs that should be withdrawn from the market due to adverse side effects that were previously unidentified. Likewise, the Food and Drug Administration - FDA will assist the National Agency for Sanitary Surveillance – ANVISA in reviewing its documents. This agreement was reached after the National Health Surveillance Agency - ANVISA received an endorsement from the Pan American Health Organization – an organization linked to the World Health Organization – WHO, which strengthened its relationships with other sister agencies.

The National Institute of Intellectual Property – INPI was established by Law 9.279/96 to perform the rules governing industrial property (such as patents and trademarks) at the national level, taking into consideration the social, econo-

mic, legal and technical objectives. The National Institute of Intellectual Property - INPI is linked to the World Intellectual Property Organization - WIPO.

Note that the National Health Surveillance Agency, ANVISA, is linked to the Ministry of Health and the National Institute of Intellectual Property - INPI is linked to the Ministry of Development, Industry and Trade. Therefore, the procedures and regulations of medicines in Brazil are bureaucratic and characterized by a long and hard approval process which takes months to years to elapse completely.

This convoluted bureaucratic system was created after a long period with no effective economic and health regulations. The pharmaceutical industry remained unregulated during the period ranging from the 1970s to the 1990s, during which the actual price of drugs usually increased above the National Index of Consumer Prices - INPC.

Due to pressures from various parts of the Brazilian society, a Parliamentary Commission of Inquiry - CPI was established in the year 2000 to investigate abusive practices in drug prices, since until that point in time the market had been free to regulate its prices. Evidence of wrongful practices was found, in particular with respect to price increases that could be considered abusive. As a result, it was understood that regulatory measures were needed to monitor drug prices.

Thus, in 2001 the National Drug Policy - PNM was passed as a set of guidelines, priorities and decisions in the pharmaceutical area involving political, regulatory, technical and managerial issues, with the objective of ensuring that the necessary safety, efficacy and quality of products were met in order to promote the rational use and access of the population to medicine. This policy stipulates guidelines for the adoption of essential medicines, health regulations of medicines, reorientation of pharmaceutical care, promotion of rational use of medicines, scientific and technological development, stimulation of drug production, safety, assurance, efficacy and quality of medicines and the development and training of human resources.

The Generic Drugs Act was enacted a year before the National Drug Policy-PNM. Generics are copies of innovative drugs whose patents have expired. The regulation of this type of medicine was passed in 1999 with the enactment of Law no. 9787. The technical criterion required for registration of generics in Brazil is similar to that adopted by regulators in countries like the United States (Food and Drug Administration), Canada (Health Canada), and the European Union, as well as other reference centers for public health worldwide. Generic drugs are one of the most important tools to aid

access to medicines in Brazil. In addition to being safe and effective, they are subjected to rigorous quality controls and are substantially cheaper than the so-called reference drugs. Generics bring a new reality for consumers in the country and are seen as a viable alternative to meet recommended treatments prescribed by practitioners.

According to Brazilian Law, generics can only be offered to consumers after passing bioequivalence tests performed on humans (which ensure that generics are absorbed in the same concentration and with equivalent speed as reference drugs or innovative) and equivalent pharmaceutical effect (which ensures that the composition of the product is identical to the reference product / innovation upon which it was developed). This demonstrates the rigor of Brazilian legislation on the subject.

In view of the recommendation of the Parliamentary Committee of Inquiry - CPI for the creation of drug market regulation, Law no. 10,742 was passed on October 6, 2003 setting forth the standards for pharmaceutical industry regulations, creating the Board of Market Regulation of Medicines - CMDE and amending Law no. 6360 of 23 September 1976.

The Medicine Market Regulation Board - CMED is an interministerial body, composed of Cabinet members of the Ministry of Health, Ministry of Justice, Ministry of Finance, and the Ministry of Development, Industry and Trade and the Chief of Staff. The CMED is responsible for implementing the regulatory system of the pharmaceutical industry, stimulating the supply of drugs, market competitiveness, price stability and increased access for low-income people by defining the pharmaceutical market through economic regulation. It stipulates the criteria for pricing of new drugs and new presentations, determines annual price adjustments, sets margins for distributors and pharmacies and applies penalties to businesses that break the rules. Among others things, the Board oversees laboratories, producers, importers of medicines, pharmacies, representatives and distributors of medicines for any public or private legal entities, including associations or persons legally constituted or with a temporary status, established or not as a legal entity, which are in some way active within the pharmaceutical industry.

During the period extending for over a decade when the industry adjusted drug prices above inflation, prices followed a yearly upward trend. However, after the regulations were passed, prices showed a downward trend, starting in 2000. There was also a strengthening of systems of public and private funding.

Another important piece of legislation was the enactment of Decree. 5090, to May 20, 2004 which regulates Law no. 10858 of 13 April 2004 and establishes the People's Pharmacy program in Brazil. This law authorizes the provision of medicines by the Osvaldo Cruz Foundation - FIOCRUZ through compensation so as to ensure the population has access to basic and essential health products and other supplies needed for health care at low cost, with agreements between the Union, States and Municipalities on supply contracts with drug companies.

Regarding the inputs required for the production of medicines, it should be noted that Brazil is a major importer of ingredients. This can be explained by lack of investment programs in Research and Development. With this low investment level in mind, and in order to encourage R&D, Decree nº. 5.563/2005 was passed, regulating the Technology Innovation Law in order to create and enable an environment for fostering strategic partnerships between universities, technological institutes and companies, and to stimulate the participation of science and technology institutes in the industry's innovation process.

For businesses, this decree is important for key tax benefits based on Taxable Income and R & D expenditures. The law also provides access to public funds for non-refundable investments in R & D. Besides this economic subsidy, the law provides for the legal use of public facilities and the possibility of sharing infrastructure, equipment and human resources for business development. It also creates clear rules for participation of public research in technology innovation processes developed in the productive sector (USP, 2012).

A subsequent law was passed under no. 11,079 on December 30, 2003, called the Law of Public-Private Partnership - PPP, setting forth the general rules for bidding and contracting public-private partnership within the public administration.

The Law of Public-Private Partnership was one of the mechanisms found by the administration to stimulate technological development in the drugs and medicine industry. On April 6, 2011, The National Health Surveillance Agency - ANVISA published seven ordinances establishing the first Regulatory Committees for monitoring of Public Private Partnerships - PPPs in the health sector. The committees will allow drug registration processes developed in partnership between the government and private to be approved through a fast track system, by expediting the arrival of new drugs for the Unified Health System – SUS and by reducing the cost of the

Ministry of Health purchases, in addition to stimulating the domestic pharmaceutical industry and research.

A further development of this partnership was announced on September 13, 2012 with the publication of Resolution RDC. 50 by the National Health Surveillance Agency - ANVISA, which sets forth the procedures under ANVISA for registration of products under development or technology transfer from development partnerships or productive public-public or public-private projects of the Unified Health System - SUS.

Regarding this, there is an ongoing public-private partnership with a company called BioNovis (BIONOVIS, 2012) that resulted from a joint venture between Aché, EMS, Hypermarcas Union and Chemistry. The partnership proposes to develop the largest pharmaceutical company in Brazil, with 60% its products sold to the government. This public / private investment and all the technology developed will be transferred to public laboratories.

4. GOIÁS PHARMACEUTICAL INDUSTRY

The Pharmaceutical Industry in Goiás is comprised of 21 laboratories, of which 20 are private and one government-owned. All of them have national capital and all except one is of local origin.

Much of the Pharmaceutical Industry is located in the Anapolis Agroindustrial District – DAIA, considered to be the first upstate industrialization zone in Brazil. Most of the production is dedicated to similar drugs, but there is already significant investment for the production of generic drugs.

The geographical border of pharmaceutical industry is formed by a polygon taking in the cities of Vitoria, Belo Horizonte, Uberlândia, São José do Rio Preto, Londrina, Curitiba and going south towards Porto Alegre. There is, however, significant growth potential in Goias, due to the fact that since 2004, the Brasilia-Goiania-Anápolis axis, already containing over 4.5 million inhabitants – the third largest consumer market in the country, accounts for 4% of Brazilian total market consumption. Moreover, the so-called *Axis of Integration and Development,* located within a proposed new region of the country, corresponds to export and investment areas of economic infrastructure striving for competitive integration and export corridors, linking to the international market.

The Multimodal Logistics Platform of Goiás will facilitate business on the axis Goiânia-Anápolis-Brasilia throughout the Midwest as a center of development with logistics and economic influence in the North and

East, thereby facilitating access to markets of the Mercosur countries, as well as the Andean, European, Asian and North American markets.

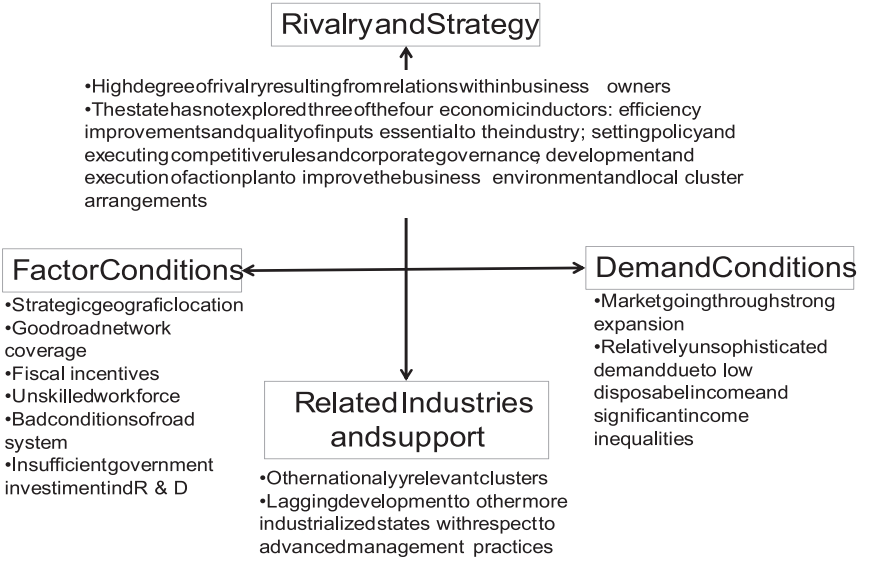
In 2003, Goiás exports increased by 70% over the previous year, totaling R$ 1.1 billion. Soybean accounted for US$ 655 million, chilled and frozen meats US$ 193 million and minerals for US$ 174 million.

4.1 Goiás Competitiveness

Goiás ranks tenth in the state economies of the country. Its GDP of R$ 75.275 billion represents 2.48% of the national GDP and annual per capita income reached R$ 12,979. These figures appear small compared to other states that are more industrially developed, but are growing at a higher rate than the national average. In the last ten years, the Goiás economy has diversified, showing an expansion of 56.42% above the national average of 42.85% over the same period.

The service sector is still predominant in Goiás, accounting for 60.95% of the production of wealth. This includes trade, both wholesale and retail, and real estate activities, which are experiencing a vertical expansion in the capital, Goiânia. The industrial sector accounts for 26.21% of the state's GDP, while agriculture is of great importance to the economy of Goiás, with 12.84% of the total GDP (Estado de Goiás, 2012). Figure 1.2 depicts the sources of competitive advantages and problems of the state of Goias.

Figure 1.2 – Sources of advantage and problems in Goias



Source: Authors

4.1.1 Factor conditions

Goiás is the most "central" state in Brazil, which explains why many companies dedicated to distribution and logistics have large operations in the same cities – Goiânia, Aparecida de Goiânia and Anapolis – which form the hub of the state's pharmaceutical industry. This is no coincidence.

Goiás is endowed with port infrastructure, road and rail networks. An extensive highway system covers 24,970 kilometers of roads (of which 52% are paved) connecting its 246 cities. According to the state's Agency of Transportation and Works – AGETOP, of this total, 4,505 kilometers are stretches of federal roads, 18,725 are state roads and 1,739 both state and federal. Goiás also has 685 kms. of the Ferrovia Centro-Atlântica Railway, which serves the southeastern corner of the state and the Federal District. The State is also home to a large part of the North-South Railway, stretching 1,200 kilometers through Goiás, planned to be completed in 2012 and still under construction.

Another decisive factor that attracts companies to the region is the State Government program called Produzir (formerly known as Fomentar), which encourages the deployment, expansion or revitalization of industries, investments, technology transfer and increased competitiveness with an emphasis on the generation of jobs, income and reduction of social and regional inequalities. The Microproduzir subprogram of the Produzir is targeted to micro and small businesses that have revenues not exceeding a specified limit fixed under the Simples national tax program.

Both programs work as financial instruments for state taxes due by recipient companies, thereby reducing production costs and making products more competitive in the market.

Moreover, a recent study prepared by the Economist Intelligence Unit (figure 3) analyzed 25 indicators in eight categories to form the ranking of the best places to invest in Brazil. Goiás appears as 12th place in this ranking. The indicators that leverage the state's position are income inequality, provision of skilled labor, productivity of labor, quality of the telecommunications network, the quality of the road network (which is large, as mentioned above, but with poor conditions), public spending on Research and Development and infrastructure R & D. By these indicators, Goiás obtained scores 25 points out of 100 possible.

4.1.2 Related industries and support activities

Some of Goiás clusters, such as food, beverage and mining, are very relevant nationally. The food and mining sectors account for a large percentage of the exports - along with other notable volumes compared to the state's economic importance on - attract workers at the managerial and executive levels and increase the demand for qualified for Goiás. As a result, companies are increasingly hiring skilled workers and advancing their management practices.

However, this rate of development still does not put the Goiás companies on the same level as the states of São Paulo, Rio de Janeiro, Minas Gerais, Santa Catarina, Paraná, Rio Grande do Sul and Bahia with respect to excellence in business management practices. Companies in Goiás still have a long way to go in developing good practices, methods and management tools to achieve excellent business levels.

4.1.3 Demand conditions

Consumer and business demand in Goiás is relatively unsophisticated, given the income inequalities in the state. Income per capita, as shown in Figure 3, is positioned in the middle of the scale, but income inequality - especially in the capital Goiânia is one of the worst in Latin America, according to the recent UNO study entitled 'State of the World Cities 2010/2011'. This highlights the fact that a large portion of the population lives with scarce resources, which does not favor sophistication and a skilled labor market.

On the other hand, the market growth indicator of Goiás shows a maximum score of 100, which leads us to the conclusion that the market growth will balance the relative income inequality with respect to the demand for sophisticated services.

4.1.4 Rivalry and strategy context

The fact that Goiás has clusters that are nationally relevant is decisive for the decisions made by firms in terms of strategy and competition. Due to the relatively small size of its economy, the high achievers, important executives and government leaders are known to relate to each other. This situation leads to an environment of healthy rivalry, since communication stirs up and challenges others to lead part of the community and seek privileged status.

However, as previously mentioned, updated and innovative production technologies and manufacturing practices, methods, and management tools are not valued per se by Goiás businesses.

Another aspect that affects the strategy and rivalry context is the fact that, in Porter's conceptualization, the Goiás State Government performs only one of the four roles as an inducer of the economy.

There is no evidence that the Government of Goiás will:

- Seek to improve the efficiency and quality of essential inputs for industries, such as skilled workers and adequate physical infrastructure, as evidenced by indicators 5.1, 5.2, 6.1 and 6.2 of the Economist study (Figure 1.3);

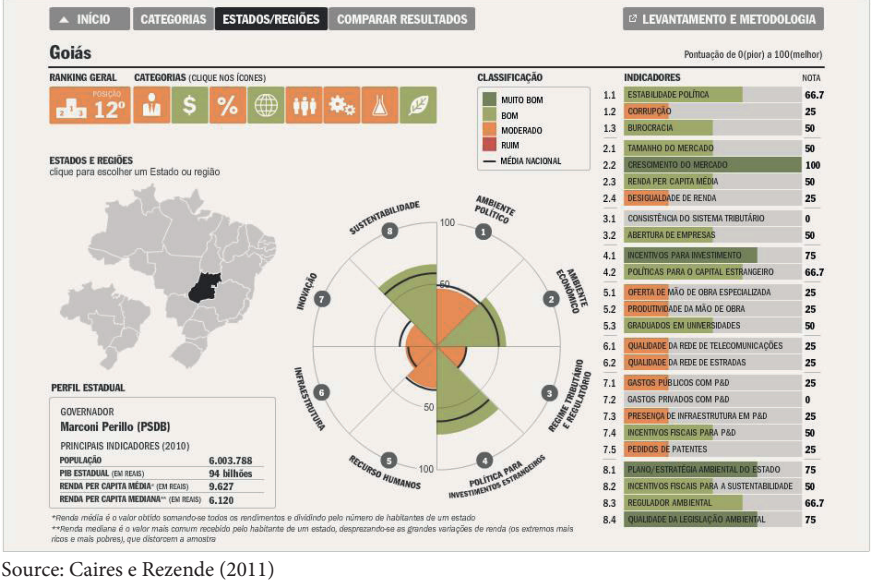
- Establish a policy of competition that promotes competitiveness, corporate governance rules that make managers accountable for their performance and efficient regulatory processes that foster innovation instead of maintaining the status quo;

- Develop and implement a program of action or process of major change that mobilizes government, enterprises, institutions and citizens to advance the business environment and the arrangement of local clusters.

4.2 Cluster Competitiveness: Anápolis, Goiânia and Aparecida de Goiânia

The City of Anapolis is historically devoted to commerce and industry. Over the years, it has effectively contributed to the good economic performance of the state.

Figure 1.3 – Management ranking of the state of Goiás

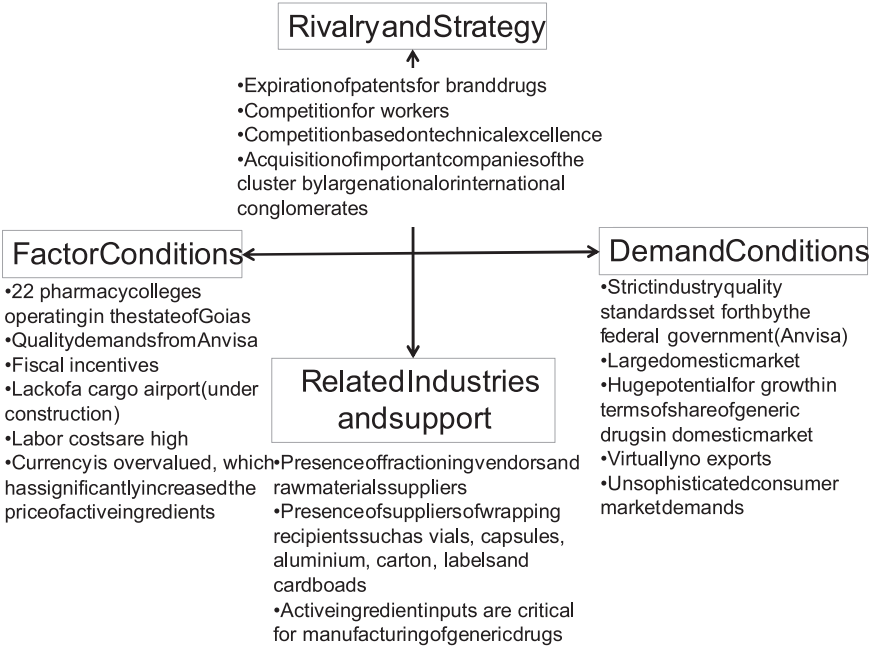


Source: Caires e Rezende (2011)

In the 1950s and 1960s, the city played a key role in supporting the creation of the new capitals of Goiás, Goiânia, and Brasilia, thanks to its strong wholesale trade and industries of cereal pottery.

Anapolis enjoyed significant economic development from the mid -1970s with the Deployment of the Agroindustrial District (DAIA), which made the dream of former entrepreneurs waving the battle flag of one of the oldest class entities of Goiás, the Commercial and Industrial Association of Anapolis (ACIA), a reality.

Figure 1.4 – Factor Conditions of the Biopharmaceutical Cluster in Goias



Source: Authors

In the 1990s, the DAIA became a reference in Brazil and abroad with the deployment of pharmo-chemical Industrial Zone. Today, it is the second largest concentration of laboratories in the country in terms of employees for generic drug production, and the companies are equipped with cutting edge global technology. The DAIA is located in an area of 8,000,000 square meters which is being expanded with an additional 1,920,000 square meters to accommodate new businesses and the Multimodal Logistics Platform, one of the strategic projects of the Government

of Goiás, supported by the City of Anapolis. The EADI- Estação Aduaneira do Interior (Midwest Dry Port) is a customs terminal for public use, a secondary zone for the provision of handling and storage of goods under customs control.

The location of the Dry Port is strategic: 45 Kilometers from Goiania, capital of Goiás, and 150 Kilometers from Brasilia, the Federal capital. Three federal roads connect in Anapolis: BR 060, 153 and 414, along with the railway known as the "Brazil Cloverleaf."

The geographic location is a major attraction for operators and logistics companies seeking ideal conditions for the distribution of their products on competitive terms. Figure 1.4 presents the factor conditions of biopharmaceutical cluster in Goias.

4.2.1 Factor conditions

The state of Goiás has twenty-two (22) Colleges of Pharmacy that provide technical and specialized manpower for the cluster. There is a cluster of educational institutions in Pharmacy in Goiás with course structures and curricula in Pharmaceutical Science that have not yet met the standards and regulations of the National Agency for Sanitary Vigilance-ANVISA, nor the industry demands for pharmacy professionals who not only know the technical aspects, but are also familiar with the production and process industry.

Another determining factor for the economic performance of the cluster is its geographical position and extensive road network and its intersections. This condition is partially complicated by the bottlenecks and transportation infrastructure problems of the country and state. The Anapolis cargo airport is scheduled to open in March 2014, which will be a determining factor in the continued growth of the cluster, since it will provide a much more efficient and less costly logistics process, in particular for the acquisition of raw materials.

Key factors for the installation and growth of companies in the state's pharmaceutical cluster are the tax incentive programs of the government: PRODUZIR, the program that spawned from FOMENTAR, and funding from the federal government for the Midwest region under the Fundo Constitutional de Financiamento do Centro-Oeste (Constitutional Financing Program for the Midwest) program.

Also important are the decisive initiatives of the regulatory body, the National Agency for Sanitary Vigilance-ANVISA, for the improvement

of product quality and manufacturing processes in the Brazilian pharmaceutical industry. Over and beyond any demand condition, the National Health Surveillance Agency-ANVISA acts in determining requirements and standards for the production and marketing of pharmaceuticals, in line with the most stringent international standards. According to Mr. Marçal Soares, CEO of the Association of Pharmaceutical Industries of the state of Goiás (Sindifargo), the result of these actions changed the products and processes of the companies that comprise the cluster, taking them to a level that allowed them to respond to any inspection requirements of regulatory agencies in Europe and North America, including the Food and Drug Administration.

One factor that affects industry performance has been the appreciation of the Brazilian currency. Production inputs as well as active drug ingredients for the manufacture of generics are imported. Recent appreciation of the Real took prices to levels that caused some products to be taken out of production, due to unfavorable economic returns.

4.2.2 Demand conditions

Customer demand conditions were not decisive for driving product quality and increased competitiveness of the cluster. One reason is that the cluster does not export – and this could lead to high standards of consumption regarding the quality and safety of products.

The single most important factor for improving the quality and increasing the competitiveness of the cluster was driven by the requirements imposed by the National Health Surveillance Agency-ANVISA, the Brazilian pharmaceutical regulatory body.

On the other hand, a significant domestic market comprised of a large population, the sheer size of the country and low-income citizens provided a tremendous boost to the development of the domestic pharmaceutical industry, based on the production of generic drugs – which, according to federal law, are mandatorily sold to the final consumer price at least 35% below the brand name drugs.

In Brazil, the generic drugs account for 25.6% of sales in unit terms of the pharmaceutical market. Compared to the U.S. (60%), UK (60%) and Germany (66%), there is significant growth potential for generics in the Brazilian market, driven by the increasing demand for the product (generic) and the credibility acquired in the consumer market.

4.2.3 Related industries and support activities

The basic raw materials supplied to the pharmaceutical industry are active ingredients or drugs and pharmaceutical chemicals produced by industry, in addition to excipients and carriers such as alcohol, talcum powder, sucrose, lactose, starch, etc.. The survey revealed that almost of the raw materials consumed by current laboratories are produced outside the region and state, and largely internationally.

Pharmochemical company Champion produces active ingredients, limited to a few products that include Thalidomide and Monosulfiram, as well as veterinary medicines. There is little integration with other laboratories as it does not supply to the local industries. In the region there are three companies that import or purchase from the domestic market, break down ingredients and distribute raw materials (such as active ingredients and excipients) to local laboratories: Pharma Nostra, and the Genix AB Farmoquímico. Virtually all active ingredients are imported.

Brazmo Companies operate the distribution of raw materials, splitting and distributing chemical supplies to laboratories. The J. Feres company splits and distributes ethanol for the production of medicines, and Arc-South distributes raw materials such as alcohol and other products.

Also found in the region of the cluster are manufacturers of containers for medicine such as capsules, collapsible tubes, cardboard, labels and boxes.

There is a large array of local producers of packaging supplies for the pharmaceutical industry, but they are quite limited in number. Graphic and carton producers are slightly larger. There are four companies in the Anapolis- Goiânia axis that serve companies in the region. Another important supplier segment is plastic packaging, with companies that offer specific production lines for the pharmaceutical industry.

Note that there are synergies in the production of packaging materials for the pharmaceutical and food industries, which have turned out to be important for the development of these companies, and certainly contributed an important element in stimulating new investments.

An important step in the economic regional development was the incorporation of five new companies in 2005-2006 specializing in packaging such as blister packs, vials, capsules, tubes, jars, glasses etc. The pharmaceutical products generally occupy large volumes and are subject to breakage, making transportation over long distances an important economic consideration.

The pharmaceutical industry uses a lot of sophisticated equipment, mostly imported from large companies. Nonetheless, Brazil's capital goods industry is able to meet a significant part of the needs of the pharmaceutical industry. Small regional and midsize labs acquire most of their machinery and equipment domestically. The local industrial structure for the production of these products in the region is still incipient. Only three companies serving the pharmaceutical sector were identified.

The Institute of Pharmaceutical Sciences - ICF is located in Goiania. It is the first national center for research supported by the National Health Surveillance Agency - ANVISA to hold the certificate of Good Laboratory Practice - GLP. It specializes in the development of pharmaceutical equivalence, bioequivalence, analysis and quality control methods and validation.

Its infrastructure has hospital volunteers, comparative and absolute substance tests and statistical studies. The Institute of Pharmaceutical Sciences - ICF serves the largest and most respected pharmaceutical companies with businesses in Brazil, including Hexal, Medley, Merck, Neo Química, Novartis, Ranbaxy, Schering-Plough, and Teuto Vitapan.

As previously noted, the city of Anapolis is an important road hub where some of the largest logistics operators in the country are located. This availability of logistics services is crucial to the success not only of the pharmaceutical cluster, but for a number of companies in other industries that operate in the region. The construction of the cargo airport, however, will further develop the competitiveness of the pharmaceutical cluster, given the high added value of some products and supplies industry that are transported by air with greater efficiency.

4.2.4 Industry rivalry and strategy

The strategy of the companies in the cluster is determined, among other factors, by the expiration of patents on branded drugs. In addition, generic drugs are commodities and, as such, the production and marketing economic feasibility hinges on high production volumes and productivity, since profit margins are reduced. This becomes even more critical due to the fact that under the Syndicated Pharmaceutical Industries of the state of Goiás - SINDIFARGO, companies have been practicing percentage discount on the so-called "factory price" (maximum price allowed for sales to pharmacies, distributors and public administrations), which reach 85%.

As for the rivalry, the three elements described by Porter were identified in the cluster analysis, namely: competition for people, technical ex-

cellence and enhancing their status in the region, since local companies close to each other and their founders and owners relate to each other on a personal level. This reality however has been changing gradually, as a result of the acquisition of part or all companies in the cluster by domestic and foreign conglomerates.

5. STATE'S PHARMACEUTICAL INDUSTRY STATUS

A trend is noted in terms of the development of companies through the expansion of the product lines. In the area of human resources qualification, various courses and training programs have been offered in the region. In September 2003, a graduate-level program in Industrial Pharmaceutical Technology began with a partnership between the Institute of Pharmaceutical Technology Management - IGTF and the Graduate School of Pharmacy of the Federal University of Rio de Janeiro - UFRJ, with a focus on daily business perspective to pharmaceutical manufacturing and its characteristics. Other professional training programs are offered by the Institute of Pharmaceutical Technology Management - IGTF with the Pontifícia Universidade Católica of Goiás;

The Institute of Pharmaceutical Technology Management – IGTF was granted the status of a Social Organization Civil Public Interest – OSCIP by the Ministry of Justice. It is a non-profit institute led by an advisory board composed of the principal officers serving the organization and chaired by a representative of the industry. The creation, organization and management of IGTF provided the region with an increased level of cohesion and organization within the cluster.

Its objectives are:

1. To proactively articulate the provision of technical and technological services for the region's Pharmaceutical companies, identifying, organizing and stimulating demand and supply;
2. To coordinate training programs for human resources development at various levels in response to current and potential demands of the industry;
3. To promote the gathering, organization and dissemination of technological information, and to operationalize a database of strategic information for the industry sector;
4. To encourage the research and development of products and

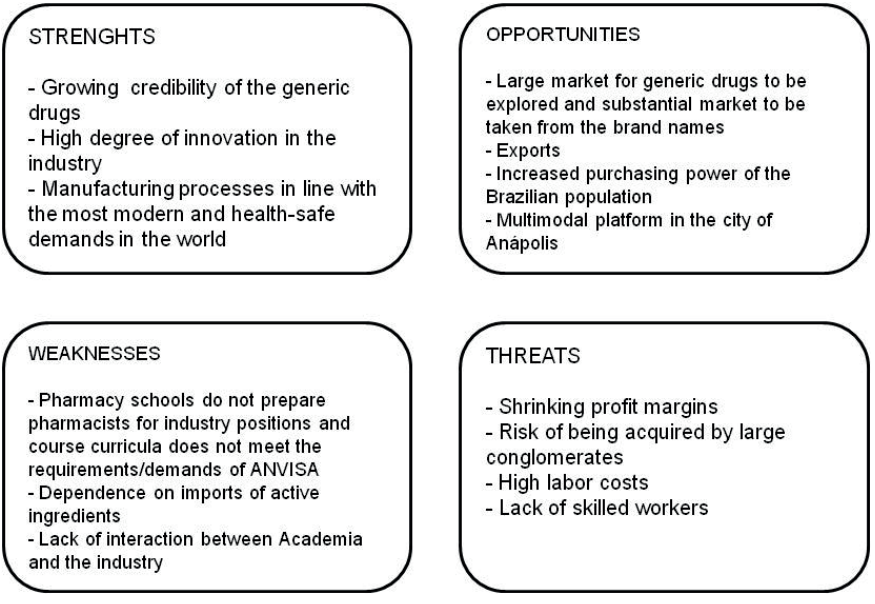
processes and work in project management collaborative efforts for Research, Development and Innovation;

5. To coordinate programs of Quality Management and Environment initiatives for the sector;
6. To organize events, symposia, exhibitions etc;

6. SWOT ANALYSIS – CONCLUDING REMARKS

No industry operates in a vacuum. It affects and is affected by the environment. The SWOT Analysis (Figure 1.5) is of decisive help in understanding not only the opportunities and threats presented by the environment, but also to identify the industry's strengths and weaknesses, so it can line up its strengths with the opportunities and address its weaknesses under the threats' light.

Figure 1.5 – SWOT Analysis



Source: Authors

The large market to be explored and the portion to be taken from the brand names have a strong correlation with the fact of the growing credibility of generic drugs in the country. Also, exports opportunities tend to me much easier explored due to the multimodal platform being built in the city

of Anapolis, alongside with the strength of state-of-the-art manufacturing processes able to meet the requirements of the most demanding drug agencies worldwide, like FDA and EMEA.

The increasing purchasing power of the Brazilian population is also a significant opportunity to be explored, because it is not enough to buy the brand name drugs, but is progressively capable of purchasing generic drugs.

On the threats' side, shrinking profit margins have a strong correlation with the country's low productivity, virtually unchanged since the 1980s (SAE, 2013), which, in its turn, is related, among other things, to the identified weakness of pharmacists not prepared for meeting the industry demands. The low productivity, that affects all industries in Brazil, is also directly related to the lack of skilled workers for the Biopharma industry, also identified in our SWOT analysis. Large conglomerates, with efficient shared operations, have been taking advantage of this weakness.

High labor costs have been undermining the ability of Brazil to compete in international level for decades. Another issue is the growth of wages of the Brazilian workforce that have been forcing the labor costs even higher, as they the latter is an effect of the former.

Companies in the state of Goiás, traditionally, have not being interested in supporting and teaming with the Academia like their counterparts in the Southeast and South regions of the country do. This gap should be urgently bridged so both sided can profit from a mutual benefit relationship that is of utterly importance for the state of Goiás growth.

7. RECOMMENDATIONS FOR INCREASING THE COMPETITIVENESS OF THE CLUSTER

7.1 At the regional level (Goiás state)

- Commitment from the State Government to the effective construction and delivery of multimodal platform. The civil works at the Goiania airport have been delayed for several years, giving the state capital's airport the reputation of being one of the worst airports of all state capitals. The multimodal platform should not run the same risk, or otherwise the growth potential of the state's industry will be seriously compromised;

- The government should promote genuine interaction and integration between the Colleges of Pharmacy and the pharmaceutical industry, in order to encouraged the creation of forums of discussion of issues related to the application of knowledge gained in academia and avoid outdated curriculum structure;
- Support the shaping of Goiás Competitive Movement (GCM), which seeks to disseminate among the companies the state's Management Excellence Model (MEG) as a complete and comprehensive model for managing businesses. To date, no state company became eligible or was considered a candidate for the National Quality Award which recognizes organizations in deploying the most advanced management models;
- Develop and implement effective actions for qualifying skilled labor for the pharmaceutical industry, in partnership with SENAI and FIEG.
- Address the poor conditions of the state in terms of road infrastructure, reduce the economic dependence of the state on road transportation and set initiatives to increase the competitiveness of the state's industry.

7.2 At the Cluster Level

- Companies should seek foreign markets. According to Porter, the supply of products to other markets, other than the domestic market, is a decisive factor for companies to solidify their competitive capacity and enables them to address possible threats posed by new entrants in the international generics industry;
- Work in partnership with the State Government and local Pharmacy Colleges in order to promote the necessary improvements in the curriculum, so that pharmacists can adapt to the demands imposed by ANVISA and manufacturing processes;
- Seek alternatives to reduce dependence on imported active ingredients, which (since their price reference is in foreign currency) reduces the industry competitiveness of generic drugs manufactured within the cluster;
- Set ambitious goals and corresponding initiatives to capture progressively larger portions of the pharmaceutical market, as

compared to more mature markets, where there are still significant parts of the market for increasing the share;
- Pressure the State Government to maintain and meet deadlines for construction and delivery of the multimodal platform.

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CHAPTER 2
AGROINDUSTRIAL CLUSTER IN GOIAS' SOUTHWESTERN REGION - BRAZIL

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1. INTRODUCTION

The agribusiness is the Brazilian national economic force, with quantitative and qualitative leaps, with an average performance greater than the Industrial Sector and with a huge employment capacity, this force is leveraging the economic progress and pushing other sectors, bringing development to small and big municipalities and generating income.

Agribusiness is compound of various interdependent activities which have as its center in farming and cattle raising. From one side, are the suppliers of machinery, agricultural supplies and equipment and, on the other side, the distribution activities, industrial processing and services. Thus, there are three sectors in this economic activity: primary (agribusiness and vegetal extraction), secondary (industry) and tertiary (distribution and commercialization).

In the state of Goiás, the agribusiness is the most explored sector. The fast growth started through a differentiated policies concerning fiscal incentive, which occurred in the 1990's. As far as the numbers in the agricultural activities are concerned, the state of Goiás is leader and is showing good results in the production of coffee, corn, wheat, garlic, rice, cotton, soy bean, sugar cane and tomato.

In the Brazilian agribusiness growth, the municipality of Rio Verde, located in the south west micro region of Goiás, has a huge agro industrial

infrastructure which is the result of the agriculture modernization through public policies which. Later on turned viable the agro industrialization process, bringing a complex productivity chain. In 1976 it was created COMIGO, a cooperative which had and still has a very strong supporting role in research, diffusion and technical assistance. Rio Verde municipality also has other agricultural enterprises such as: Brejeiro, Grupo Cereal and Cargill. Rio Verde municipality is an important producer of cotton, beans, sun flower, soy beans and corn. Another sector which gets the benefit of the inflow of visitors to the city due to the agribusiness is the sector of tourism which has experienced a greater utilization of hotel accommodations, food and beverages.

2. BRAZIL

2.1 Economical And Historical Context

Brazil is one of the biggest countries in the world, located in the Eastern of the South American continent, with a territorial extension which comprehend a total area of 8,514,876 square kilometers which includes 8,456,510 square kilometers of earth surface and 55,455 square kilometers of water; according to the Brazilian Institute of Geography and Statistics (IBGE) Brazil has 192,376,496 inhabitants.

One should highlight that, historically, the agricultural sector has always been one of the main Brazilian economic bases, since the pre-colonial period, when the subsistence agriculture was practiced, going to the colonization period with the monoculture, up to the contemporary diversity of production, where technology and mechanization is predominant (Seibel, 2007).

The agricultural production always existed in Brazil, since its primordia, at the time the natives consumed the local food and planted as source of livelihood, until the arrival of the European people who introduced the cultivation and exportation of Brazil wood (*Caesalpinia echinata)*. However, not very promising the natural responses, it started the sugar cane monoculture in the North East region, in the XVII century, using slave work which did not promote social nor technical development (Calmon, 1939).

However the sugar produced in Brazil was the cheapest; it did not have access to the world market, and that generated in other producing regions a diversity of production.

At the end of the colonial period the coffee production was introduced in the country consolidating after the country`s independence in 1822, mainly in South-east Region. Coffee export, in the decades of 1880 and 1890, jumped from 19% to about 63% of the total country export (Baer, 2003).

In the post war period, in the years 1950, the great demand of the urban centers was not supplied and there was shortage of basic products such as sugar, wheat, beans and other products.

At the time of the military regime in Brazil, in 1973, it was created the Brazilian Agricultural Research Corporation (EMBRAPA); it has been responsible for studies which promoted the development and the agricultural diversity in many regions of the country (Baer, 2003).

With the monetary stabilization which came with the Real Plan, after 1994, the Brazilian agricultural model went through a drastic change, with the reduction of the state`s participation and the market started financing the agriculture, which pushed the development of products for a globalized market, with a great increase in productivity, technology and professionalization (Baer, 2003).

According to the July 2012 issue of the Systematic Agricultural Production Survey (LSPA), done by IBGE, there is an area to be harvested of 49.4 million of hectares. The three main cultures are rice, corn and soy bean which corresponds to 84.7% of the area to be harvested and together represent 91% of the 2012 production.

Yet, according to IBGE, the most important producing regions are the Central-west Region with 69.8 million metric tons; the South Region with 56.7 million metric tons, the Southeast Region with 19.1 million metric tons, the Northeast Region with 13.2 million metric tons and the North Region with 4.5 million metric tons.

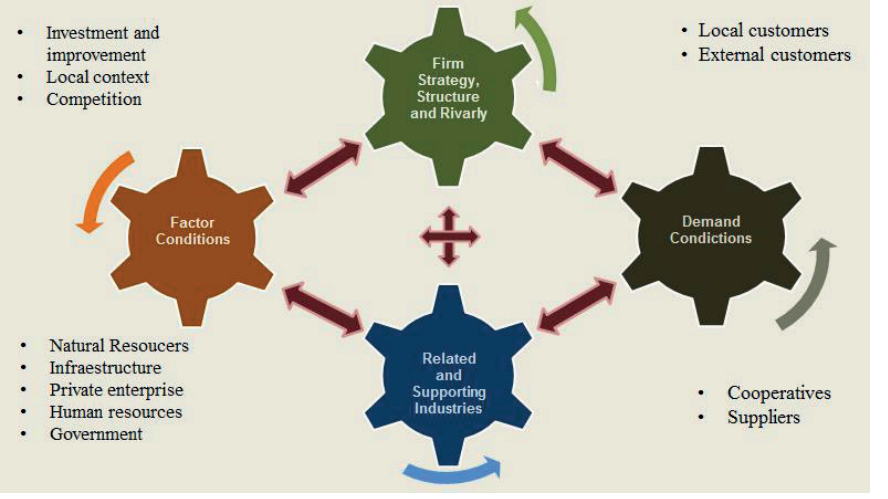
This way, one may see how important the role of the agricultural sector in the Brazilian Economy is. It is a sector that, notably contributes for the Brazilian economic growth, as it is seen in its history, and it puts the country in a highlighted position in international market, and, sometimes, the expression *"Brazil the barn of the world"*, the demonstrate Brazil's natural agricultural tendency.

2.2 National Diamond Analysis

Porter's Diamond Model (Porter, 1990, 1998) shows as a schematic solution in the diamond form which links points or responsible factors for a cluster competitive advantage creation. Figure 2.1 helps to better unders-

tand the history of the evolution of the cluster in the State of Goiás, showing it's wealthy of conditions and opportunities.

Figure 2.1: Diamond Model Definition



Source: Authors

2.2.1 Factor Conditions

As far as physical resources are concerned, Brazil is the country with the greatest geographical potential for agricultural expansion; it has approximately 550 million of hectares which may be used in agriculture, of this volume, only 4% is being used according to the Food and Agriculture Organization of the United Nations (FAO, 2012).

As far as knowledge, even though it is inferior to the USA if compared, Brazil is on the avant-garde of this production technology. Another important factor and differential when faced with other nations is the abundance of cheap labor.

Negotiation has been getting better through the changes in the production financing mechanisms giving the producers more autonomy, and improving their production strategies.

On the other side, some factor such as: logistics infrastructure and inefficiency in storage strongly limits the competitiveness power of the soy bean derivate in the external market, mainly in the Central-west region, which is far away from the export ports (IBGE, 2012).

2.2.2 Demand Conditions

Regarding grains, the condition analysis of the internal demand, the exporting is being more attractive than the internal consumption due to reduction in taxes, over exported raw materials and also other factors such as: inefficient local processors and political protectionism from developed countries prioritizing the import of raw material instead of processed products.

For the soybean bran, the average growth is more balanced when one compares the internal consumption and exportation. This happens because internally the soybean bran is directed to the animal feed and meat processing industries, but it is important to highlight that the internal consumption is directly linked to the performance of these industries.

Analyzing soybean oil and its byproducts, the internal consumption shows two variables: the first one is related to the food industry products, such as margarine, vegetal creams, mayonnaise and salad dressing; this market has been constant through the years. Soybean oil has also been used for energy production; it is used in the production of biodiesel, with a growing use. Export of these products has been growing at 33% yearly rate.

Generally, these three products, soybean, soybean bran and soybean oil, have high level of international consumption, and there is a strong demand for them in the international market. In 2008, for example, 50% of the internal production of these products and their sub products were directed for the external market (Lazzarini, 1998).

2.2.3 Correlated And Support Industries

Going to the analysis of the correlated industries, the fertilizer industries are the most important in the soybean business. Besides financing the production, it also provides nutrients for soybean production. This mechanism is important in the grain production capacity, that is, the fertilizer producing companies provide fertilizers to the producers of grain in exchange for certain quantities of soybean bags in the harvest time. This helps to overcome the financing shortage for the soybean producers. For these and other reasons, the national enterprises show how important is this financing mechanism in the structuring of a company. The sector of agricultural machinery has been promoting the improvement of the planting operation, making it more efficient.

2.2.4 Strategy, Structure And Companies Rivalry

Brazilian competitiveness as an exporter of the soybean complex becomes evident in the participation of the multinational grain traders such as Bunge, Cargill, ADM and Louis-Dreyfus; these companies help to coordinate the integrated mechanism of financing, processing and delivery of the production, guaranteeing the good functioning of the production chain.

Many changes have occurred in this financing model until it got to today's efficient model. At the beginning the agreement were signed by means of green soybean contracts, that is, instead of taking financing at a bank, the farmer used to establish agreement with the cooperatives or companies, where the farmer would get raw material or supplies in exchange for a quantity of soybean bags after harvest; however the agreements were very often broken by the farmers due to the high prices the soybean would reach; it did not offer any security or guarantee to the companies. In 1994 the Rural Product Bond was created, where it would be fixed guarantee through a bank or an insurance agency. It was, contrary to the green soybean, a contractual guarantee. The Rural Product Bonds are recognized by the Brazil's Central Bank and are registered in the Agribusiness Custody Bond System (Zoonews, 2012).

3. STATE OF GOIÁS

3.1 Goiás Economic Origin

In the middle of the XVIII century, more precisely around the years 1726 and 1778, the economy of the State of Goiás was based on mineral exploitation, with prominence of gold. However, the gold richness did not stay in Goiás; the biggest part of it enriched the Portuguese crown. But not only gold made the region's economic activity, it also had a not so expressive business turned to mining, subsistence agriculture and cattle raising.

Due to a mining crises in XIX century, the economy of Goiás got strong and gets force with cattle raising, however this economic activity had some fundamental problems, and one of the most serious was the weak transport system (the conditions of road system). The cattle transportation was less dependent of this system since it transported itself, thus initiating the activities linked to cattle raising. This way it was possible to expand the consuming market.

The development of capitalism in Goiás was slowed due to the precarious communication means, because it was very difficult the connection of this region with the other Brazilian states, especially with the Center-west region. The economy did not grow due to the inefficient road system and the answer to this problem was to use the rail road's already installed in the state.

Soon, in the XX century, it was necessary to acquire new land so that the Brazilian economy would get stronger and, this way there would be an increase in productivity, and that happened with the march of coffee in the states of Minas Gerais and São Paulo. The state of Goiás did not go through such difficulty, because its economic power comes from its fertile and productive land. What was missing in the state of Goiás was a solution for its transport system so that it could supply the national demand. Notwithstanding, the rail road pushed the cattle raising production and gave notoriety to trade. The state economy got projection all over the country. Cattle raising and business, in the XX century, was concentrated in the southern part of the state of Goiás, where is located the main cities of the state (SEPLAN, 2012)..

3.1.1 The Green Revolution

According to what was supported by Wagner de Cerqueira and Francisco (Equipe Brasil Escola, 2012), "… the expression Green Revolution was created in 1966, in a conference in Washington, but the agricultural modernization process which stated it has occurred in the end of the 1940's. The program idea was to increase agricultural production through research for the development of seeds, soil fertilization and use of agricultural machinery which could increase productivity. This would be done through de development of seeds adequate for each specific type of soil and climate, soil adaptation for the seeding and development of machinery. The modified seed developed in laboratory has high resistance to different types of pests and diseases. This seed planting, along with pesticides, fertilizers, agricultural implements and machinery, increases significantly agricultural production.

This program was funded by the Rockefeller Foundation, of New York. With an ideological speech and intending to increase productivity of food so that could eliminate the world hunger Rockefeller Foundation has expanded its consumption market, made corporation stronger selling real agricultural input packages, mainly to developing countries such as India, Brazil and Mexico."

After this initiative, there was an increase in food production; however the hunger problem was not solved, because the grain production in the developing countries is for the rich and developed nations, such the United States of America, Japan and the European Union countries.

The agrarian structure has changed after the modernization process in the country and the small producers got hurt. Those who did not adapt to the new techniques or did not have money to buy them were not able to stay in production. This way, many rural producers were forced to sell their properties to pay for bank loans taken to finance their activities.

The Green Revolution was positive in the way that it brought efficiency and specialization to the agricultural production. In the other side, it was a disaster for the small producers who did not adapt to the "new model". It also did not bring a solution to the problem defended by the Rockefeller Foundation, which was bring to an end the world hunger, it only showed that there are new technologies for the agricultural activity.

3.1.2 Green Revolution Consequences For Brazil

During the military regime in Brazil (it started in 1964), it was discussed which way Brazil should take to increase its agricultural production and there were two alternatives: The Agrarian Reform, the agrarian structure and the purchase by the producers of new technological packages (mechanization). The government opted to maintain the existing structure and adopted the Green Revolution model; this decision was very criticized because it was seen as very conservative.

Initially, the most affected regions were the Southeast, South and later on the Center-west. The subsidy to the expansion of the new agricultural frontier occurred through the private corporations, but with government support. It was observed that monoculture such as soybean, corn, cotton and rice, had preference because they were exportable. Following, sugar cane production expanded due to the subsidy which came with Proálcool Program (Brazilian Ethanol Program, launched in the 1970s to reduce the external monetary dependence due to the changes in the price of oil in the international market). With this initiative, there was an improvement in the sector`s productivity; however the environment and society were gravely affected.

The environment was affected due to the genetic erosion; animal and vegetal species disappeared, deforestation, intensive use of pesticides to eliminate pests that proliferate, ecosystem contamination and irrigation difficulty.

For men, the greatest consequence was on his/hers health, due to the inadequate manipulation of pesticides which was deposited in his/hers organism causing irreversible diseases. The main problems occured in the respiratory tract, mental disturbance, renal and hepatic lesions. Social exclusion was also an enormous consequence of the Green Revolution, because its benefits were for a minority, the big producers. The human labor was substituted by machinery which brought about the rural unemployment. This social exclusion caused by the country modernization brought about migration to the big cities, especially São Paulo and Rio de Janeiro; these centers would receive these emigrants paying for their low labor wages.

The agrarian concentration appeared at this time, where the main part of the assets belonged to large farms. Thus, the land conflict and mobilization for land had started, where the workers fought for the Agrarian Reform. One of these movements with international expression is the Landless Rural Workers Movement called `MST`.

3.1.3 Present Time Green Revolution

The crises brought about by world hunger, nowadays, if compared to the ideals of the Green Revolution, could be seen as an opportunity to create conditions and alternatives to bring this problem to an end, such as: adoption of precision farming, the use of biotechnology in the production of seeds, modern production using technology, expansion of the agricultural boundaries and public-private partnerships to help the small and medium producers, who also contributes for the evolution of the agribusiness (Equipe Brasil Escola, 2012).

3.1.4 Goiás State In The National Context – 2008

The state of Goiás is located in the Brazilian Center-west region; it occupies an area of 340,087 square kilometers. When compared to the other Brazilian states, it has 3% of the country population and is 7th as far as territorial extension is concerned. It borders the states of Minas Gerais and Mato Grosso do Sul (to the South), Tocantins (to the North), Mato Grosso (to the West) and Minas Gerais and Bahia (to the east).

The state of Goiás has a significant participation in the grain economy. It accounts for 8.52% of national production (Table 2.1). In a comparative analysis, one notes that there was evolution in this sector from 2000 to 2007, when production of the state of Goiás jumped from 8.7 million metric tons of grain (a national production participation of 9.97%) in 2000

to 11.3 million metric tons in 2007, bringing it to the 4th, place in the national ranking. In the classification by production, the state of Goiás assumed the 1st place in the production of sorghum, 3rd place in the production of cotton, 4th place in the production of soybean, 5th place in the production of beans and corn, 6th place in the production of sugar cane and 7th place in the production of rice.

Table 2.1: Grain Production, comparing to the states - 2000, 2007 - 2008

State	2000			2007[1]			Variation (%) 2000 / 2007	2008[1]
	Grain Production (ton)	Part (%)	Ranking	Grain Production (ton)	Part (%)	Ranking		Grain Production (ton)
Brazil	87.572.919	100		**135.462.213**	100		**54,69**	147.880.852
Centro-Oeste	25.975.687	29,66		**44.026.244**	32,5		**69,49**	50.673.196
Paraná	16.471.297	18,81	1º	29.441.776	21,73	1º	78,75	31.503.866
Rio Grande do Sul	15.098.405	17,24	2º	24.461.263	18,06	2º	62,01	22.753.918
Mato Grosso	12.964.791	14,8	3º	23.752.814	17,53	3º	83,21	28.362.410
Goiás	**8.727.474**	**9,97**	**4º**	**11.378.951**	**8,4**	**4º**	**30,38**	**13.214.484**
Minas Gerais	8.145.011	9,3	5º	10.412.692	7,69	5º	27,84	11.696.033
Mato Grosso do Sul	4.006.174	4,57	8º	8.405.631	6,21	6º	109,82	8.615.620
São Paulo	5.225.961	5,97	6º	6.464.928	4,77	7º	23,71	7.385.121
Santa Catarina	5.025.534	5,74	7º	6.398.742	4,72	8º	27,32	6.501.038
Bahia	3.729.048	4,26	9º	5.291.864	3,91	9º	41,91	6.214.073
Maranhão	1.536.457	1,75	10º	2.335.757	1,72	10º	52,02	2.517.566
Tocantins	660.120	0,75	14º	1.283.232	0,95	11º	94,39	1.560.965
Pará	1.021.181	1,17	13º	1.159.890	0,86	12º	13,58	1.188.482
Piauí	642.458	0,73	16º	859.045	0,63	13º	33,71	1.465.573
Rondônia	652.438	0,75	15º	785.501	0,58	14º	20,39	916.174
Espírito Santo	1.182.859	1,35	11º	734.005	0,54	15º	-37,95	727.323
Ceará	1.025.452	1,17	12º	577.637	0,43	16º	-43,67	1.144.234
Distrito Federal	277.247	0,32	17º	488.848	0,36	17º	76,32	523.022
Sergipe	147.839	0,17	20º	314.557	0,23	18º	112,77	478.264
Pernambuco	268.008	0,31	18º	270.785	0,2	19º	1,04	383.022
Paraíba	242.034	0,28	19º	147.982	0,11	20º	-38,86	228.506
Roraima	70.500	0,08	24º	139.758	0,1	21º	98,24	139.258
Acre	92.737	0,11	23º	94.238	0,07	22º	1,62	64.472
Alagoas	120.212	0,14	21º	83.200	0,06	23º	-30,79	123.602
Rio Grande do Norte	112.165	0,13	22º	71.133	0,05	24º	-36,58	112.596
Rio de Janeiro	67.631	0,08	25º	51.569	0,04	25º	-23,75	48.870
Amazonas	57.952	0,07	26º	51.373	0,04	26º	-11,35	48.554
Amapá	1.934	0,002	27º	5.043	0	27º	160,75	6.144

Source: IBGE. Elaborated by: SEPLAN-GO / SEPIN / Socioeconomic Statistics Manager – 2008 (1) Preliminary data.

The state economy consolidated in the national context, due to its agricultural capacity to equilibrate the trade balance, to produce raw material for the agroindustries, to foster job generation, due to the existence of fertile soils and also because of subsidies coming from the federal go-

vernment. According to SEPLAN (2008) the increase in the agricultural output of Goiás was pushed mainly by productivity gains in the cultures of: soybeans, cotton, corn, sorghum, sugar cane, and beans amongst others.

One of the factors which took the economy of Goiás to gain such expression was cattle raising. Another agribusiness activity which puts Goiás as one of the biggest Brazilian producers of cattle, its herd is of 20.4 million units, setting Goiás in the 4th position in Brazil, representing 10.25% of the national herd (Table 2.2). In Brazil, agriculture usually includes plant and animal production in the same farms. Goiás also occupies the 6th place in production of poultry and 7th position in the production of pork.

Table 2.2: Effective cattle herd, according to the states - 2000 - 2006 – 2007

State	2000			2006			2007			Variation (%) 2000 / 2007
	Bovine (Unit.)	Part (%)	Ranking	Bovine (Unit.)	Part (%)	Ranking	Bovine (Unit.)	Part (%)	Ranking	
Brazil	**169.875.524**	**100,00**		**205.886.244**	**100,00**		**199.752.014**	**100,00**		**R$ 17,59**
Centro-Oeste	**59.641.301**	**35,11**		**70.535.922**	**34,26**		**68.088.112**	**34,09**		**R$ 14,16**
Mato Grosso	18.924.532	11,14	3º	26.064.332	12,66	1º	25.683.031	12,86	1º	R$ 35,71
Minas Gerais	19.975.271	11,76	2º	22.203.154	0,78	3º	22.575.194	11,30	2º	R$ 13,02
Mato Grosso do Sul	22.205.408	13,07	1º	23.726.290	11,52	2º	21.832.001	10,93	3º	-R$ 1,68
Goiás	**18.399.222**	10,83	**4º**	**20.646.560**	10,03	**4º**	**20.471.490**	10,25	**4º**	**R$ 11,26**
Pará	10.271.409	6,05	7º	17.501.678	8,50	5º	15.353.989	7,69	5º	R$ 49,48
Rio Grande do Sul	13.601.000	8,01	5º	13.974.827	6,79	6º	13.516.426	6,77	6º	-R$ 0,62
São Paulo	13.091.946	7,71	6º	12.790.383	6,21	7º	11.790.564	5,90	7º	-R$ 9,94
Bahia	9.556.752	5,63	9º	10.764.857	5,23	9º	11.385.723	5,70	8º	R$ 19,14
Rondônia	5.664.320	3,33	11º	11.484.162	5,58	8º	11.007.613	5,51	9º	R$ 94,33
Paraná	9.645.866	5,68	8º	9.764.545	4,74	10º	9.494.843	4,75	10º	-R$ 1,57
Tocantins	6.142.096	3,62	10º	7.760.590	3,77	11º	7.395.450	3,70	11º	R$ 20,41
Maranhão	4.093.563	2,41	12º	6.613.270	3,21	12º	6.609.438	3,31	12º	R$ 61,46
Santa Catarina	3.051.104	1,80	13º	3.460.835	1,68	13º	3.488.992	1,75	13º	R$ 14,35
Ceará	2.205.954	1,30	14º	2.352.589	1,14	15º	2.424.290	1,21	14º	R$ 9,90
Acre	1.033.311	0,61	19º	2.452.915	1,19	14º	2.315.798	1,16	15º	R$ 124,11
Pernambuco	1.515.712	0,89	18º	2.095.184	1,02	18º	2.219.892	1,11	16º	R$ 46,46
Espírito Santo	1.825.283	1,07	16º	2.119.309	1,03	16º	2.142.342	1,07	17º	R$ 17,37
Rio de Janeiro	1.959.497	1,15	15º	2.095.666	1,02	17º	2.078.529	1,04	18º	R$ 6,07
Piauí	1.779.456	1,05	17º	1.838.378	0,89	19º	1.736.520	0,87	19º	-R$ 2,41
Amazonas	843.254	0,50	22º	1.243.358	0,60	20º	1.208.652	0,61	20º	R$ 43,33
Paraíba	952.779	0,56	20º	1.092.792	0,53	21º	1.139.322	0,57	21º	R$ 19,58
Alagoas	778.750	0,46	24º	1.029.352	0,50	23º	1.112.125	0,56	22º	R$ 42,81
Sergipe	879.730	0,52	21º	1.067.508	0,52	22º	1.073.692	0,54	23º	R$ 22,05
Rio Grande do Norte	803.948	0,47	23º	1.027.289	0,50	24º	1.010.238	0,51	24º	R$ 25,66
Roraima	480.400	0,28	25º	508.600	0,25	25º	481.100	0,24	25º	R$ 0,15
Amapá	82.822	0,05	27º	109.081	0,05	26º	103.170	0,05	26º	R$ 24,57
Distrito Federal	112.139	0,07	26º	98.740	0,05	27º	101.590	0,05	27º	-R$ 9,41

Source: IBGE. Elaborated by: SEPLAN-GO / SEPIN / Socioeconomic Statistics Manager – 2008 (1) Preliminary data.

The agro industrial production of the state of Goiás stood out, getting to the 4th place in the national ranking in the ethanol production and the 6th place in the sugar production, those results made the state go up

two positions in the national ranking, once in the year 2000 it was in the 6th place. The good performance showed by the state is due to the government support through fiscal incentives, interest rate reduction, support to the small producer, fomented the growth and development of this sector. The investment attraction has made possible the expansion of the industrial sector, generating more jobs (from 108 thousands in the year 2000 to 173 thousands in the year 2008) and also an increase in the average income. The sectors which generate more jobs are: services (535 thousand workers); commerce (with more than 183 thousand workers); agriculture and cattle raising (63 thousand workers); and civil construction (36 thousand workers).

As far as the foreign trade is concerned, Goiás stays with a positive result in the international trade, ranking nationally in the 11th position as far as the export is concerned; Goiás foreign trade had its growth starting on the year 2000. From the total amount exported, the agricultural commodities sum up to 74% of the total. One should also highlight ferroalloys, meat, minerals and the soybean complex. The good performance of the trade balance in Goiás is due to the fiscal and tributary policies by the state government and the private sector that invested in the business and had a solid and efficient growth. The purchase of these products is done, mainly by France, Iran, Russia, Paraguay, India, China and The Netherlands.

As far as imports are concerned, Goiás buys mainly from Germany, China, Canada, Belarus, Switzerland, United States of America, South Korea, Thailand and Japan.

In 2006, the GDP of Goiás at current market price has a performance (growth) of 3.12% and reached the sum of R$ 57 billion, surpassing the year of 2003, when it summed up to R$ 43 billion. These figures put Goiás in the 9th place in the national ranking; Goiás participates with 2.41% in the Brazilian GDP.

The per capita GDP in Goiás also had a better performance, it went from R$ 7,937 in 2003, to R$ 9,962 in 2006 (Table 2.3). It represents 78.51% of the national per capita GDP, which is R$ 12,688. It is important to highlight that the average growth of the state population was 2.04% from 2002 to 2006. Goiás showed the highest migratory rate in the country; in the same period Brazil grew 1.44% in the same period (SEPLAN, 2012).

Table 2.3: P*er capita* GDP, according to the states - 2003 - 2006

State	2003		2006	
	GPD *per capita* (R$)	Ranking	GPD *per capita* (R$)	Ranking
Brazil	**9.498**		**12.688**	
Centro-Oeste	**12.228**		**15.551**	
Distrito Federal	28.282	1º	37.600	1º
São Paulo	14.788	2º	19.548	2º
Rio de Janeiro	12.514	3º	17.695	3º
Santa Catarina	11.764	4º	15.638	4º
Espírito Santo	9.425	8º	15.236	5º
Rio Grande do Sul	11.742	5º	14.310	6º
Paraná	10.935	6º	13.158	7º
Mato Grosso	10.347	7º	12.350	8º
Amazonas	8.100	10º	11.829	9º
Minas Gerais	7.937	11º	11.028	10º
Mato Grosso do Sul	8.772	9º	10.599	11º
Goiás	7.937	**11º**	9.962	**12º**
Roraima	7.455	13º	9.075	13º
Amapá	6.220	15º	8.543	14º
Rondônia	6.594	14º	8.391	15º
Sergipe	5.718	17º	7.560	16º
Tocantins	5.784	16º	7.210	17º
Acre	5.278	18º	7.041	18º
Bahia	5.031	19º	6.922	19º
Rio Grande do Norte	4.626	21º	6.754	20º
Pernambuco	4.774	20º	6.528	21º
Pará	4.448	22º	6.241	22º
Ceará	4.145	23º	5.636	23º
Paraíba	3.998	24º	5.507	24º
Alagoas	3.805	25º	5.164	25º
Maranhão	3.112	26º	4.628	26º
Piauí	2.978	27º	4.213	27º

Source: IBGE. Elaborated by: SEPLAN-GO / SEPIN / Socioeconomic Statistics Manager – 2008 (1) Preliminary data.

3.2 Goiás State Diamond

3.2.1 Factors Conditions

Cerrado (a tropical savanna ecoregion of Brazil), has some disadvantage such as tropical climate and a weak soil as far as nutrients are concerned. However, Embrapa has solved most of them through research. Notwithstanding, the Cerrado has the advantage of a sufficient quantity of rain, and does not need to use irrigation during the harvest period (The Economist, August 26, 2010).

At the state of Goiás, the passenger transportation as well as goods transportation is done by road based systems.

In a study published in 2002 by the extinct Brazilian Company of Transportation and Planning (GEIPOT), the roads` in Goiás main problems are: the roads in their natural bed, not only in the state, municipal as well as federal network. Added to this, the federal road network since the year of the study up to now is in precarious situation. Goiás needs investment in its road network as well as recovery of the existing roads. Today the highest cost of production is exactly with logistics and transportation.

According to GEIPOT's prevision (in 2002), the river based transport should constitute in a modal of great importance in the state of Goiás for delivery of its production, mainly grain production.

In the city of São Simão (sourthern state of Goiás there is a private port terminal (in Paranaíba River), where the grains produced in the Southwest of Goiás are loaded and through the rivers Paraná and Tiête, are transported to the state of São Paulo for industrialization and / or export through the Port of Santos. The river transport is also used for bringing in inputs.

All the way along Araguaia River, there is high potential for goods transportation, mainly grain, due to its influence area.

Currently Goiás has an area, south of the Federal District (Brasília) and West of Goiânia which is supplied by railway. Railway Centro-Atlântica S.A., which has connection with the ports of the state of Espírito Santo (Ports of Vitória and Tubarão) and the port of Sepetiba, in the state of Rio de Janeiro, going also to the port of Santos in the state of São Paulo; to get there, it is necessary to use the railways of the state of São Paulo. The loads commonly transported in the railway are soybean bran, petroleum derivatives, cement among others.

In the airway transport, the Southwest region (city of Rio Verde) has a local airport, with a paved runway of 1,500 meters long by 30 meters wide (with plans to enlarge it). It has night flights and passenger terminal with lines for Brasília and Goiânia (GEIPOT, 2012).

The state of Goiás is considered the heart of Brazil, it also has a dry port, with a customs station, and is strategically located in the city of Anápolis where a multimodal platform is been constructed which will speed up transportation of goods from/to Goiás state.

The customs station got the title of Customs at the end of the

1990's, giving to the Center-west region a very important logistic alternative strategically located; nowadays the customs station has a fundamental function and action in the development of the state of Goiás and all the Center-west region, connecting the region with the global market.

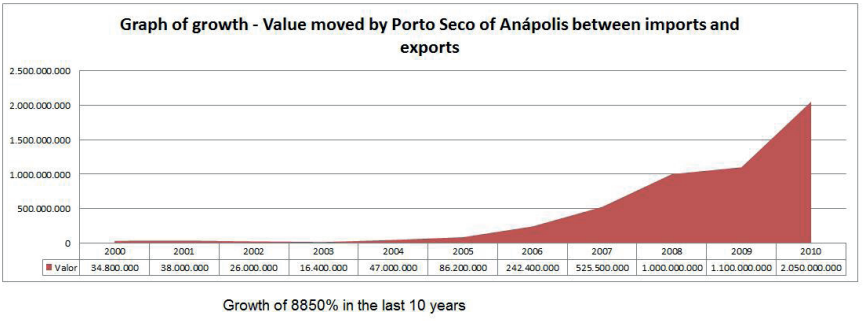
The Porto Seco Centro Oeste S/A (2012), as it was registered and constituted by local entrepreneurs who won the public tender to deliver the custom services, thus becoming a public use customs terminal, with a modern structure offering all necessary means for export, storage and goods movement also for those coming from overseas; it has been used to make foreign trade movement easier.

The Porto Seco Centro Oeste has conquered prominence position amongst the companies of the same segment in the interior of Brazil, mainly due to its privileged location. It is strategically located at what is known as the "Brazilian Clover" at the town of Anápolis – Goiás state. The town is located next to the big economic centers of the country with easy access through roads, rail and air, which means a remarkable cost reduction in the transport of goods for the local and international markets, bringing more clients and users to the region. This privileged location for delivering the most diverse types of goods make the city of Anápolis and its Dry Port, a direct link to all productive markets of the Center-west and many logistic points all over the country, that is why Anápolis has won the title of "Brazilian Clover".

The user of the Dry Port find in a single place all means to make it easier to deliver and or receive imported goods, because besides the logistic and storage structure, one will also find the customs services necessary: Brazilian Federal Revenue, Ministry of Health, Federal Sanitary Agency, Ministry of Agriculture, Livestock and Food Supply. The Dry Port is the private company with the highest investment in logistics in Center-west, attracting many companies to the region.

According to the Dry Port site, in 2007 more than USD 520 million in goods went through the Dry Port terminals which corresponded to 22,000 metric tons of goods per month; this volume represents 40% of the Brazilian goods transported by the Trem Expresso da Ferrovia Centro-Atlântica Express Train Railway Centro-Atlântica (Porto Seco Centro Oeste S/A, 2012).

Figure 2.2: Import and export growth in Anápolis - Dry Port



Source: Porto Seco Centro Oeste S/A (2012)

According to a study done by IMB (2012) in 2010 the soybean planted area in the state of Goiás reached 4.5 million hectares, which means a growth of 1.5% in the agricultural production when compared to the year 2009; this growth has been benefitted by the weather in the year 2010, it was very favorable to the soybean. The production increase was influenced by the use of new technologies, soil studies in the area to be planted; more investment by the farmers and their partnership with EMBRAPA and private companies.

Goiás employed in 2009 about 400 thousand workers in the rural area. The Economic Active Population in the state of Goiás is composed of 3.3 million workers and 15.65% of the total had been in the agricultural activity (IMB, 2012).

As in almost all agricultural countries in the world, Brazil is divides between producers with huge and productive plantations and those who have smaller areas and sometimes are less efficient. In the state of Goiás it is not different. The small producers work as the local employee for sub employment, but the bigger modern enterprises are much more productive.

The Farming and Cattle Raising cense of 2006, done by IBGE registered 12.3 million workers linked to the family farming (74% of the workers). The professional rural companies occupied 4.2 million workers, which represents 25.6% of the employed workers (IBGE, 2102)..

Considered as the "Foreign Trade Corridor", the Dry Port Centerwest aggregates competitiveness to the industries in the region with a modern infrastructure and offers a different portfolio of services (Figure 2.2).

Figure 2.3: Goiás Transport Logistics

Source: (IMB – Instituto Mauro Borges)

In 2000 it was launched by the government a project along with the private companies; this project is still being implanted. It will make it possible the cargo transport in the state and will set Anápolis as one of the main distribution centers in the country, and the Dry Port became anchor in this government project. The project is a Multimodal Logistic Platform. This platform will give a rapid access to all Brazilian Ports in a fast and economic way. The project foresees a specialized pole of services (Dry Port), and airway terminals administration, since the project counts with an international cargo transportation terminal, road cargo terminal and a railway cargo terminal; this project is budgeted in R$ 250 million (SEPLAN, 2012) – (Figure 2.3).

The last comparative study between the family production and the big producers show clearly this difference (Table 2.4).

Table 2.4: Familiar versus non familiar Agriculture – Goiás, 2006.

Selected variables	Family farming	Large scale commercial farming
Soybean production		
Number of farms	919	3,643
Production amount (metric tons)	138,571	5,375,701
Average yield (tons/hectare)	2.69	2.71
Harvested area (hectares)	51,607	1,985,960
Value of output (R$)	56,034,957	2,305,693,953

Source: IBGE / Agricultural Census of 2006

The farmer worker in Goiás has gone through professionalization, helping lever the state agricultural production and new technologies.

The illiteracy rate for people of 10 years old or more has felt from 10.8% in 2000 to 7.3% in 2010, according to IBGE data, reflecting a good increase in the level of education. Statistical studies also show an increase in the higher education, where, according to IBGE, the data shows an increase in the number of colleges and universities from the year 2000 to 2010 an increase from 35 units to 80 units (in the state of Goiás), and the number of enrolled students from 27,769 to 173,003 in the same period (IBGE, 2012).

Due to its location and its proximity to the Federal District, in Goiás the students have an easy access to professional qualification; it is easy and disposable for practically all areas in the agribusiness. The Federal University of Goiás (UFG) has its main campus in Goiânia and a campus in the cities of Jataí, which is located in the Southwest of Goiás, and in Catalão, located in the south of the state; from UFG graduates annually an average of 350 students in Agronomy (UFG website, 2012).

In the city of Rio Verde, another town located in the Southwest of Goiás, it is located the Rio Verde University FESURV, a higher education institution offering several subjects trying to supply the demand of qualified workers in the region. FESURV offers subjects in Business Administration, Biology, Agronomy, Economics, Animal Production, Mathematics, Accounting, Law and Computer Science, qualifying local and state workers (FESURV website, 2012).

The government participates indirectly in the agriculture; however, the resources and development are mainly from the private investors.

The government investment in agriculture is not much, mainly when one speaks of research and development in the field, what brings better technology for the producers and consequently an income increase.

The Brazilian government should take as priority infrastructure investment, since it is through betterment in infrastructure that the country will reduce losses in production, lower the commercialization costs and generate income, what is fundamental to create incentives for people to stay in rural areas.

Brazil and Goiás need a strategic production development plan, with an integrated and continuous public policy. Policies should not change at every government change. The ministries need to talk, plan and give continuity to what has been planned. Financing has to be ready at the right time. Also the roads, integrated logistics, the storehouses need to be built, the ports enlarged and bettered. Goiás and Brazil have had disperse policies and that has cost us very high.

3.2.2 Related & Supporting Industries

Since the government participation in the agribusiness is small, in the state of Goiás, agricultural cooperatives were setup to support the growth of the agribusiness and the agricultural cluster in the state.

COMIGO, one of the many existing cooperatives in the state has been getting prominence in the state and in the Southwest region, due to the work it has been developing and the benefits it has been giving to the agriculture in Goiás.

COMIGO cooperative was funded in the city of Rio Verde, in the Southwest of Goiás in 1975, for a group of 50 rural producers. Initially the objective of COMIGO was to attend the storage demand for rice and corn, the main products in the region in the 1970's, and also to supply basic agricultural inputs such as fertilizers, packaging material, seeds among others.

Currently COMIGO cooperative has 4,500 members and 1,600 employees and is classified as one of the six biggest cooperatives of the country; it is the first one in the Center-west.

In this scene, COMIGO Technological Center has a special place. It was a demand from its members, it has actually 800 researches going on, some of them along with big companies of the supply sector as well as universities and research centers.

COMIGO cooperative participates directly in research in the region, since the 1980's it was one of the responsible for the elaboration and implementation of an income generation program (the Programa Renda Real, 1997 to 1999), the National Agricultural Forum (FNA), and it was during this time that it signed a partnerhip with Embrapa and Rio Verde University (FESURV) amongst other research institutions. The income generation program brought together several institutions like official banks (Banco do Brasil), farmer associations at local and state level and local governments of Rio Verde and Montividiu municipalities. The objective was to setup a pilot plan (COMIGO, 2012).

3.2.3 Demand Conditions

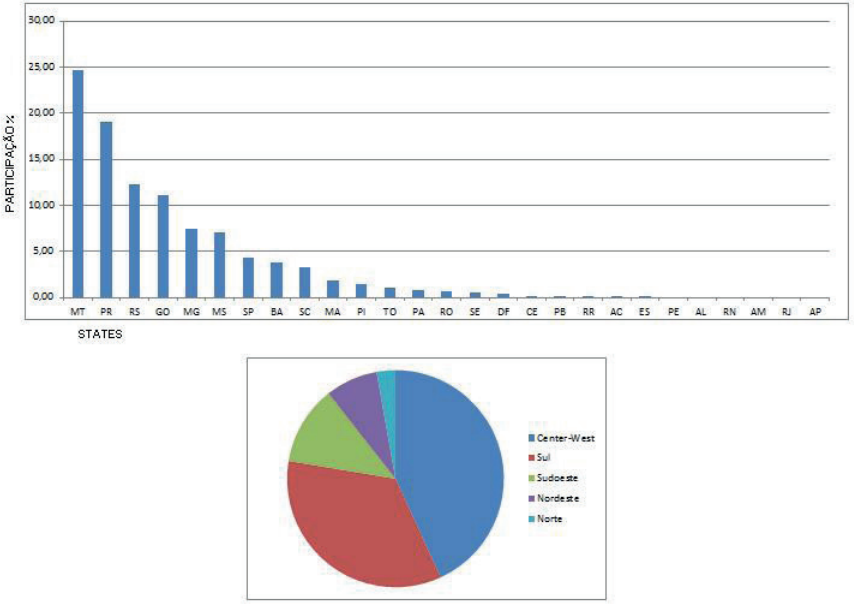
Since 2011, Goiás occupies the 4th, place in the national production of soybean it is behind the states of Mato Grosso (also in the Center-west), Paraná and Rio Grande do Sul, respectively (Figure 2.4)

The state supplies the internal demand and yet is able to supply part of the demand of other states and still has part of the production for export. Today's biggest client for Goiás' soybean is China.

For three consecutive years (2008-2010) China was the main importer of soybean from Goiás, totaling USD 707 million which corresponds to 17.5% of the total soybean export by Goiás. Following came Holland with USD 476 million (11.8%), India with USD 311 million (6.5%), United Kingdom USD 205 million (5.1%), Iran USD 188 million (4.7%), Saudi Arabia USD 103 million (2.5%), Thailand USD 99 million (2.4%). According to SEPLAN (2012) and IMB (2012) in 2010 Goiás did business with 157 different countries.

How to explain the productive capacity and the expansion of the fertile land in the Cerrado from Goiás?"In five years, the production increased almost 50%, while the planted area grew 22%. This is productivity and it was driven by soybean", said José Mário Schreiner, president of state level farmers association FAEG (The Reuters Brasil, 2012)

Figure 2.4: Product participation: cereal, leguminous and oilseeds, in the Brazilian Regions and States of the Federation (September 2012)



Source: IBGE (2012)

The best results in soybean production also have support to the producer through rural credit given by the financial institutions (Agronegócio Goiano Site, 2012).

The rural producer need to keep his feet on the ground, planning and acting with caution in relation to his/hers production, even when it is necessary to take risk, since planting depends on the climate and it requires much attention since the Cerrado is not the best type of soil and does not have the ideal climate for soybean growth; the soil and the plant were adapted so it could develop well. Comparing it to the United States of America, for instance, the producer has huge support from the government, as we know, even when the USA is going through its worst drought, the producers are not alone, they have more government support and they will suffer less.

Otherwise, in Brazil and in Goiás, the producer does not count with this type of government support. For this reason the producers in Brazil prepare themselves far ahead, planning and following a specific agricultural calendar; doing so, they reduce the chance of losing money and yet can

keep the internal demand. In Goiás, this work is done among the producers and rural cooperatives and financing agricultural institutions pushing up the growth of each harvest, going up in the internal and external production rank. Goiás is becoming more representative in the national production, and consequently, the country is getting more space in the international market.

3.2.4 Firm Strategy, Structure And Rivalry

Goiás has been in an outstanding place in the industrialization process since the 1960's until the 1980's, and has been showing a positive dynamic of development, becoming a major player in the production and export of its agricultural production. Actually the state is completely into the globalization process of the world economy, constantly diversifying and intensifying its commercial relations with the big players in the world's commodities business.

This outstanding result of the agribusiness in the local and global economy had shown as an alert that the companies should think more systematically into the competition scene they are into.

In the 1990's, for instance, the companies were looking for quality as a standard of performance. Nowadays this criterion still is used to evaluate the administration of the organizational processes, to the actual search for a sustainable competitiveness (Porter 1990, 1998); it has a relation with the administration of the strategy which is based in knowledge and tangible assets such as financial and physical capital.

Goiás stood out because it has a dynamic agribusiness and it has been consolidating in the last decades, diversifying its agricultural production, increased the cultivation area, thus notably increasing the production in the state and the country. In the trade balance, there was an increase in the sales of the soybean complex, minerals and meat. In job generation, Goiás was the first one in the country. The state also supplies the other states of the nation; its expansion shows the favorable economic time for agriculture.

In 2009 the per capita GDP got to R$ 14,447, according to IBGE. Goiás moved from the 12th position in 2008 to the 11th position in 2009 (Table 2.5). This move in the scale is important for the state, because it is reference to show the state and municipality economic development, also the standard of living of the population. What we have seen in the state of

Goiás, mainly in the last three years is betterment in the standard of living of the state as far as income and education is concerned.

Table 2.5: State of Goiás, Center-West and Brazil: GDP total and per capita at current market prices, 2005 – 2009.

Where?	GDP at current prices (billion R$)					GDP per capita (thousand R$)				
	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
Goiás	50.5	57.1	65.2	75.3	85,6	8.99	9.96	11.55	12.88	14.45
Center-West	190.2	206,3	236.0	279,0	310.8	14.61	15.55	17.84	20.40	22.36
Brazil	2,147.2	2,369.5	2,661.2	3,032.2	3,239.4	11.66	12.69	14.46	15.99	16.92

Source: SEGPLAN-GO / SEPIN / Gerência de Contas Regionais – Regional Account Manager. Elaborated by: SEGPLAN -GO / SEPIN / Socio Economic Statistics Manager – 2011.

The export turnover in 2010 was USD 4.4 billion, while the import income represented USD 4.2 billion. Goiás has many sources of investment for agriculture; it gives the state some prominence. Goiás is the state with the highest volume of new investment.

The National Development Bank BNDES showed a growth of 281% in five years (2006 to 2010). The investments from the special regional development fund FCO, only in 2010, reached R$ 1.6 million. Out of this, 29% has been invested in Goiás state, generating an average of 55,000 direct and indirect jobs.

The state government of Goiás also has specific programs to foster industrial development based on tax policy, attracting investors to the state, focusing on processing agricultural products.

4. THE AGROINDUSTRIAL CLUSTER OF GOIÁS SOUTHWEST REGION

4.1 Historical Context

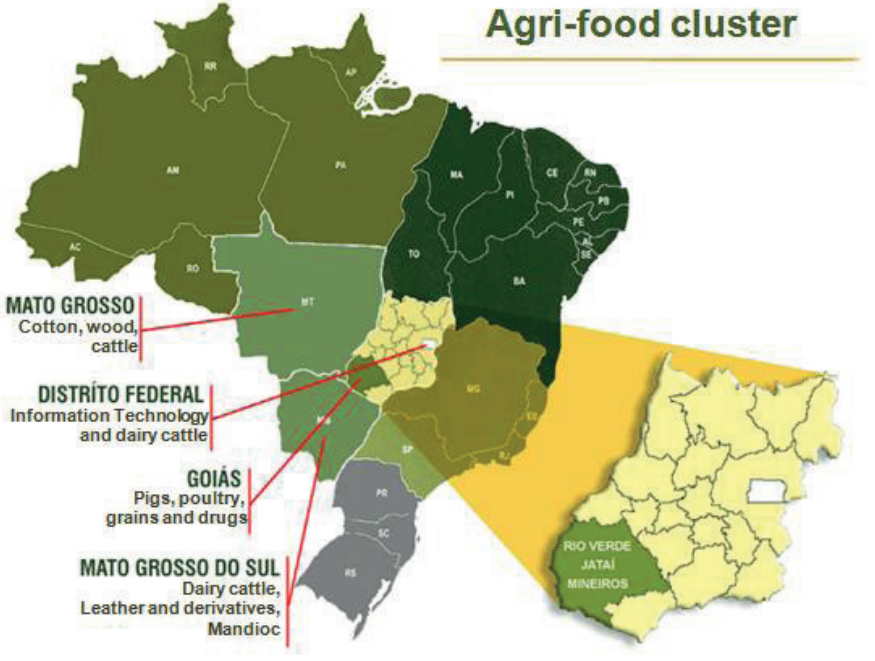
The micro region located in the Southwest part of Goiás is constituted by the municipalities with characteristics similar or complementary, showing specific factors and conditions for the development of the agricultural sector, and consequently, the consolidation of the agro industrialization process (Figure 2.5).

Southwest region of Goiás is a microregion of the state of Goiás with

an agroindustrial economy based in the productive arrangement of grain, poultry and pork. It comprehends 18 municipalities, with a population of 344,377 inhabitants and within the municipalities with the highest population are Rio Verde, Jataí, Mineiros and Santa Helena de Goiás. Starting in 1980, soybean and corn became the major agricultural products of the region, having a surplus to export and processing for agroindustrial production, and the development of poultry and pork production (Paiva, 2004).

The history of growth and development of the agribusiness and the consolidation of the agricultural cluster in the Southwest region of Goiás was based in the agroindustrialization of the productive chains of poultry and pork. In this context is prominent the municipalities of Rio Verde, Jataí, Mineiros, Montividiu, Chapadão do Céu and Acreúna; these municipalities became prominent producers and articulated the sustainability conditions in the productivity chain.

Figure 2.5: Brazil Map detaching the Southwest region of Goiás



Source: SEPLAN/Maps – adapted by the authors of the case

In this universe of regions, one can observe strongly the policy of

agricultural cluster formation in the municipality of Rio Verde, which consolidated this process based on two distinct periods. In the beginning of 1983, with the installation of a soybean crushing unit constituted by COMIGO cooperative, following the setup of a soybean oil refinery in 1984 by the same cooperative. With these investments the soybean chain was consolidated in the region.

In the second part of the 1990's with the setup of the Perdigão complex, actually BRF Foods in the municipality of Rio Verde, due to the exhaustion of the agricultural frontier in the south of the Brazil, where this firm was originally founded. However, the coming of Perdigão to Rio Verde was of great importance to the town, since it made possible the production of corn as well as its industrialization, at the same time it constituted the production chain of poultry and pork, what also consolidated the production of soybean and corn which are the basis of the food chain for the above mentioned livestock.

At that time, it was verified the growth of the agricultural sector, and it stated to conquer a big part of the marked once occupied by the cattle raising. There were many aspects to justify the growth of the agriculture in the region; the climate, the soil, the geographical position of the municipality within the state, the high technological density and many other aspects that in a direct or indirect form were very important to justify this growth.

The agrarian sector, the private and public companies had distinct and important roles in this process, through "regional incentive and developing support by government programs and the private sector necessity for competitive advantages, such as strategic location factors and natural resources availability and raw materials, deriving from globalization" (Alves & Abreu, 2004:2).

The locational advantage of Rio Verde municipality makes it different from the others which are not privileged. Its territory size is expressive, it is endowed with high technological density, such as: tractors, agricultural equipment, auto parts, modern laboratories, health facilities, IT, electronic material and R&D centers (Alves & Abreu, 2004:1).

These facilities contributed to attraction and setup of new development centers mainly in the agribusiness in the country side.

Among the advantages of the Center-west region described by Falcão & Medeiros (2001) it comes out: a) infrastructure, made of a flat or slightly waved surface, making it easier to maintain the roads, allowing the traffic of heavy trucks, and government program to extend the electrical power

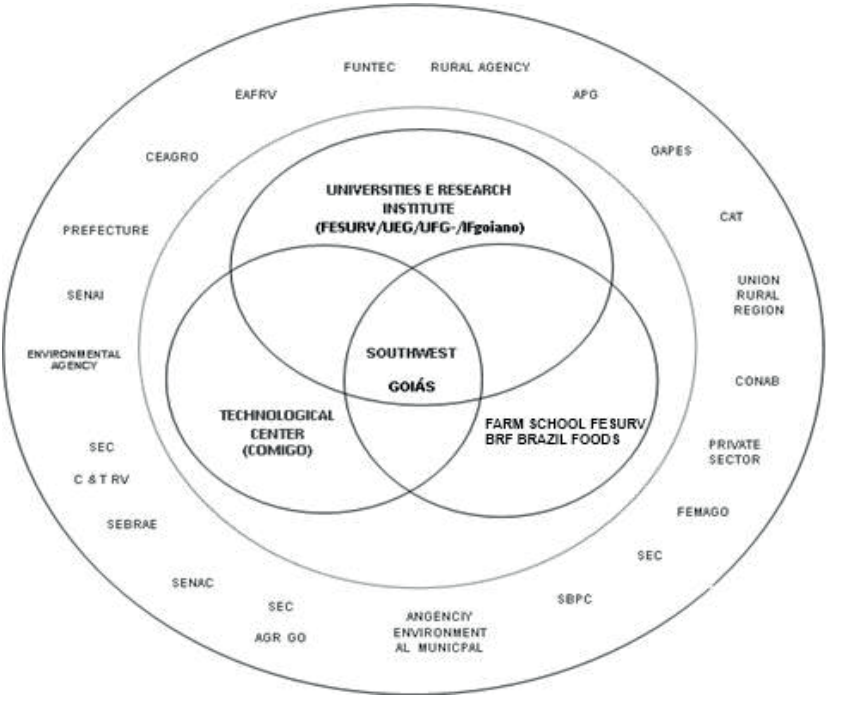
grid to rural areas; b) favorable climate, at an altitude of 800 meters above sea level, low variation of temperature and a defined rainfall regime, and c) environment and agrarian structure, with sanitary advantage due to the absence of similar activities of big size, availability of rivers and large agricultural areas to distribute the manure generated by livestock production.

4.2 Cluster Diamond Model

4.2.1 Factor Conditions

In Goiás' Southwest region, the factor conditions are predominant to guarantee the sustainability of the agroindustrial cluster, since this sector is dependent of all aggregated sectors distributed between the organizational and institutional environment present in the region. The state government played an important role in the development process and growth of the production chain. The state government also benefited from the cluster development.

Figure 2.6: Agribusiness Excellence Center in Goiás' Southwest region..



Source: Created by Prof. José Marcelo de Abreu, (2005)

Considering the municipality of Rio Verde, as a development pole and strengthening the agricultural cluster in the region, Figure 2.6 presents the organizational and institutional structure, created and consolidated through the participation of different public and private institutions that in common agreement guarantee the functioning of the regional cluster.

All institutions mentioned in Figure 2.6, have their particularities and correlated importance to guarantee the local cluster dynamics. The dynamics of the complex production chain has been strengthened by individual and group action. This generated benefits and facilitated the development of the region as a whole. Even though the condition and institutional factors being present in the municipality of Rio Verde, Goiás, the center of the process, it is easily seen that the microregion of the Southwest of Goiás is benefitted by the policies and models developed in the region; it facilitates the expansion of the productive chain to other localities consolidating the strategic methodology of development, through the creation of local and regional clusters.

The region is a strong grain producer in the State of Goiás, characterized by the intense support infrastructure through the diversity of financing agencies which facilitates and at the same time guarantees the access to credit as well as to government benefits. Currently, in the region, there are branches of several banks and supporting institutions.

For the human factor, there are many public and private educational institutions acting from high school level, professional (technical), graduate and postgraduate level degrees (MSc and PhD). Thess educational institutions provide skilled labor, which represented an important limiting factor at the beginning of the cluster. On the other hand, it is an important competitive factor when compared with other regions of the country.

According to Brum & Wedekin (2002), the competitive advantage is measurable by the greater productivity of the production factors, and the competitiveness is a determinant factor for the success of a cluster. This represents a very appropriated concept for the productive chain of grain, poultry and pork.

The factors land and technology put the region in an important position in the national scene. In farm land the production is diversified thanks the quite flat relief, which facilitate mechanization of larger areas of grain like soybeans and corn. Those crops require large scale production in order to keep costs low and thus ensure sustainable supply of grain to the pork and poultry chains.

As far as technology is concerned, this factor is fundamental to guarantee the competitiveness and dynamics of the cluster. Several companies provide inputs like seeds, fertilizers, pesticides, machinery, and equipment representatives are available in the cluster. Additionally, there are R&D institutions which develop products and support services to the local productive chains, besides delivering knowledge and technologies through field days and technological fairs, cattle raising and agribusiness discussion events such as seminars, congresses, forums etc.

4.2.2 Demand Conditions

In the demand conditions, once more it is perceptive the presence and participation of the government in the federal, state and local levels in bringing together public institutions to organize in a way to create conditions of support in the attraction of new investors to the region, development of public policies and fiscal and monetary incentives. Additionally, they create industrial districts for small and medium enterprises. Those SMEs supply specific products and services to the regional cluster.

4.2.3 Related And Supporting Industries

The agroindustrial activity is in the root of the development process and strongly contributes to generate income, job, goods for export and development of the country side. One can observe that the state of Goiás and the Southwest region in the state and more specifically the municipality of Rio Verde have shown economic figures which indicate a significant increase in the productive activities. In the agroindustrial area there is the creation of 4 industrial districts 2 of them belonging to the municipality and 2 belonging to the state, and there are already 534 industries installed; 1,556 services companies; 1,426 companies linked directly to the agribusiness and 2,814 commercial stores (IBGE, 2010).

These districts guarantee the option for clustering companies, once they were developed with the objective of offering products and services to bigger companies. The bigger companies need a large quantity of products and services related to the agroindustrial production. Thus, in these districts the companies are setup in an organized form to offer from inputs to administration and planning software.

4.2.4 Strategy, Structure And Rivalry Among The Companies

The agroindustrial cluster of Southwest Goiás, in its strategic con-

dition and structure for investment attraction counts with an important government participation in the reduction of the taxes once it makes the fiscal policy as an attraction factor and production activity diversification as described in table 2.6. This model of policies summed to federal financing program conducted by representative public finance institutions, has earned emphasis and at the same time consolidated a financial structure sufficient to constitute the companies conglomerate present at the cluster.

Table 2.6: Agribusiness products with reduction of sale taxes

Sector	**Domestic Tax Burden**	**Interstate operations**
Meat[1,2]	3%	3%
Milk	10%	9%
Cotton	4.25% to 8.5%	3% to 6%
Rice	Exemption (Producer to industry)	7%
Soya	Exemption (Producer to industry)	7% (Oil and Offal)
Corn[3]	Exempt domestic shipping	-
Leather	Total exemption	-
Animals	Exemption in internal operations	-

Source: SEFAZ/2010

(1) Cattle, buffalo, pork, poultry and fishes

(2) The benefit giving to fish meat is only valid for internal circulation

(3) It includes wheat, sun flower and sugar cane

Support companies in diverse sectors has used the strategy of getting the fiscal, financial and structural benefits offered by the public sector, which has directed a set of actions to the class organizations which complete the objective of strengthening the productive chain, as well as the incoming of new support companies and / or companies that converge to the sectors already structured in the cluster.

The sectors rivalry is understood as beneficial, since the great part of the productive agents identified within the cluster have the same opportunities of access to the benefits, what guarantee a positive competition, making the agents to look for improvement in their products and services making it possible a high offer of these products, benefitting every link of the productive chain as well as the final consumer who has access to products of quality and with a competitive price.

The constitution of associations, organized groups and class representatives is another characteristic of the region, which contributes for stra-

tegic actions in distinct areas straightening the entrepreneurs and at the same time professionalizing the offer of service and products. Within the actions one can observe the organization of business fairs, forum, commercial interchange and delivery to the international market, enlarging the local and regional market borders, thus giving greater competitiveness to the implanted cluster.

4.3 Cluster Challenges In The Agroinsdustrial Sector

There are many challenges to be faced to guarantee betterment and efficiency in the regional cluster, due to the speed with which the basic conditions of the region were structured. On the other side, with an unordered growth due to huge capital attraction and consequently the increase in the workers capacity and the population growth, some factor and demand conditions became the main bottleneck of the sector.

- **Natural Resources:** The awareness of the population regarding environmental preservation is low. There are signs of vulnerability in the environment, showing erosion in some regions. One also observes pollution, thus little, in the streams and rivers, also deforesting in the riverhead. The rivers, in some regions, are silt up.
- **Infrastructure:** The roads, in their majority, are very poorly maintained. The majority of the vicinal roads is not paved, and is very weary during the rainy season, contributing to the increase in costs for their users and government. The region will soon be contemplated with the railroad Ferro Norte it may facilitate the logistic in the region and at the same time reduce the weariness of the roads.

The storage sector shows deficiency in their operational process, mainly because it has to move the products around many times, which causes losses and damage to the products. It is necessary to revise the legislation which regulates the storage activity.

The farms have low storage capacity, weakening their position within the cluster. The big warehouses do not have agility in the reception of the agricultural products; and they cannot stay in the farms, because they do not have storage capacity, thus the time between harvest / freight and the

delivery to the warehouses / unloading reduces the quality of part of the produced grain.

The electrical power supply in rural areas is insufficient as far as demand is concerned. Many producers cannot store their production in their own property because there is not enough electricity to supply their necessity. The region also suffers because of the low quality of the electric energy supplied, once the constant blackouts are harmful, and very harmful, to the industrial plants in the regional cluster.

- **Technological Capacity:** The investment in Technological Capacity and R&D is still insufficient for the real necessities of the cluster. The research lines are scattered, needing a better concentration to guarantee faster results within the established priorities set by the region interested community.
- **Offered Services:** In the regional cluster there are constant shortages of parts for machinery and cattle raising and farming equipment and, sometimes, there are shortages of inputs, once the supplying companies' stocks are low. It is also missing a net of laboratories to help the producers in soil and product analysis, mainly meat and grain.
- **Entrepreneurship Capacity:** It is not observed in the region a research and development effort turned to the industry, storage or transport areas, which are the three fundamental points. And the main local companies are branches of big companies from other states or from international groups, which train their personnel or invest in new technologies used in other units.

Today's Approach To Face These Challenges

It is very important to understand the promoted activities to the development of the region. They have as their bases the local furnishing and also a guaranteed market, to do so it is needed to have quality in the final product and competitive prices. The first premise is assured due to the proximity to the raw material suppliers and by the high quantity of superior level technicians existing some of them with master's degree or even with doctorate degree. However, none of the industrial companies will establish in the region thinking only in the local market, since in the majority of the cases it is not sufficient.

In this way, the development of the Agroindustrial Cluster aims the

Southwest, in function of the supplied products and the existing challenges. However, to overcame all the challenges it is necessary to create growth strategies and sustainable development considering the great integration of efforts between public and private institutions in the process.

One observes in the region, actions based in three main goals, which should be reached and had as a sustainable bases to overcome the Agro Industrial Cluster challenges:

- All levels population growth and substantial increase in productivity;
- Increase in employment and growth of the social wellbeing, with the access of the population, as a whole, to the citizenship consumption (food, clothing, health, housing, transport and leisure).
- Preserve the natural resources, amplifying the surrounding resources of the region.

This way one verifies the straightening of three big areas, with the strategic power of multiplying results, this equation and entrepreneurship touches the local necessities for a more efficient development of the region:

- Productive activity diversification
- Amplification and betterment of the economic and social infrastructure
- Technological development and workers capacitation

Productive Activities Diversification

First it is necessary to go deeper into the knowledge of the local productivity chain, the ones now happening, which are investigated and already turned better, and the new possibilities in which the cluster participates partially and might incorporate in its totality.

One can have as example, in this second case, the cotton productive chain.

This way one means that all action trying to stimulate drives for diversification of the productive base, goes through the productive chain analysis referring to the specific activity, in this way making it possible the investment multiplication and a higher income and employment.

The investment in the textile industry should be followed by invest-

ment in clothing and bed, bath and table linen industry; investment in sacks production, and in cotton production. Brazil is the third producer of cotton in the world rank, and Goiás is the second state producer in Brazil; Southwest Micro region has started to appear with the city of Chapadão do Céu, as the second producer in the state of Goiás. In the same form there is production in the municipalities around, such as Acreúna, actually the biggest state producer.

The hotel investment should give priority to the rural inns, farm-hotels, trying to explore the huge regional potential, existing in the eco and adventure tourism. Another important factor is the local cattle raising and farming and the use of advanced technology, which may become a tourist attraction. This is a permanent action in the region, based on the long event calendar with important events linked to the tourism sector, which generated new investments in hotel industry, bars and restaurants which improve the local business.

All incentive programs already in place need to have a larger enhancing power looked for the existing institutional program, which have received them due to the activities in discussion. On the other hand, the programs had to be linked to a specific funding scheme. This is a very common form used by the government, what gives the local entrepreneurs a reduction in the investment risk, major guarantees to the financing agent and higher security and return to the businessmen. In this way, the presence of public banks was necessary for the proposed investment success, where the financing agent reduces the red tape in the process.

Expansion and Improvement of the Economic and Social Infrastructure

The region is well served of Industrial District, which has received total infrastructure for its perfect functioning: all paved roads / streets, fixed and mobile telephone structure, industrial sewage system, water supply and mainly guarantee of sufficient electric energy, according to the planned demand. All supplying companies are fully prepared to fulfill the demand. For that it is necessary to go through the necessary planning.

In the case of state level energy supplier CELG, it has total interest in the state industrialization and its capacity to fulfill de demand depends only in the planning. There are also possibilities of setting up small hydro-power plants, once the local rivers are adequate for that. There is also the possibility of importing electricity from other providers available in the state area.

The transportation logistic should go through a quasi-revolution,

due to the enormous losses normally occurred during postharvest time. The vicinal roads, linking the farms, should receive permanent maintenance, notably in the rainy season. The Federal Road BR060 is in its duplication process in the interval between Goiânia (state capital) and the municipality of Jataí. This will give dynamism and reduce transportation costs in the region.

Considering that great part of the actual production goes to the Southeast and South of the country, for many reasons, and that there will be a substantial increase in production in the incoming years, and that this production will have to reach the consuming markets competitively, the Federal Government along with the state and municipality approved and initiated the construction project of the North-South railway. It will link the region to the main exporting ports; this will solve a good part of the transport of the goods produced in the cluster region; this will guarantee a greater local and regional competiveness.

In the transportation context it is inserted the storage sector, a sector of fundamental importance, once it works with incoming and outgoing products. In this way it has increased the investment conditions by the producers through specific federal government financing lines, giving the producers the opportunity of building their own warehouses, bringing down a semi monopoly existing in the storage sector, at the same time working a commercialization strategy increasing the efficiency and effectiveness of the market.

Technological Development and Personal Capacitating

This area is fundamental and yet still there are many local necessities, the Cluster is well equipped for the development of this activity. Many steps in this way have been given and efforts undertook, that means an incipient technological development culture has been starting in the region. COMIGO's growth in the last years, the installation of BRF Foods and the growth of the education institutions, totally devoted to the local development, are in one side a strong pillar of technological support.

The existing structure, together with EMBRAPA, and with the private research units with total support of the State Secretary of Science and Technology, and the participation of R&D funding agencies in the region, make an extraordinary net of capable of developing any program or project turned to the technological development necessary to sustain the regional growth.

The colleges and universities offer highly skilled labor – and a high quantity of masters and doctors in science – who should be well used in their abilities in the use of knowledge, to develop the necessary research. The trained workers should be supplied using these specialized technicians according to the demand. In this way it is also possible to use available professional and technical schools and training centers sponsored by industry associations.

4.4 Recommendations To The Cluster

4.4.1 General Aspects

The Southwest region of Goiás, which forms the Agro Industrial Cluster in the condition of productive chain of grain, pork and poultry, looks for sustainability and attraction of capital and people and are in real development conditions, in all ways. The development way may then be pursued in a rational and conscientious form, going for the well-being and happiness of the population, through taking advantage of the potential or created opportunities, and the solution of problems that may endanger the continuity of the progress of the social and economic elements, already established or yet to be promoted.

The above mentioned municipalities as great articulators and inducers of the Agro Industrial Cluster formation are pioneers in the region and always were ahead of the others in infrastructure and economic development. And being relatively far away from the big consuming centers, normally the states capitals and their surroundings, ended up creating their own growth opportunity and sustentation. The region has today the best perspective of development, not only by the great economic development already shown, but also by the conditions developed by its people very integrated when they need to overcame the difficulties and answer to problems.

Threats

- There is not enough electrical power available to sustain the industrial growth. If it comes to happen in an accelerated form, the lack of investment in the sector and the sector obsolescence may threaten the development;
- Low local labor skills, in operational functions, due to the low and

sparsely diversified industrial park, as well as the concentration of small business which requires few or no specialization;

- In relation to pork and poultry, there is risk of disease and consequently the spreading of it due to the high animal concentration and the negligence in the adequate treatment of manure, because of the high costs and the low average revenues in the sector;
- If it is confirmed the stagnation tendency in the cattle raising production or even its reduction in the next years, with the agriculture expansion in all regions or other animals which have greater support from the research institutions or applied technology;
- Development of pests in the agriculture due to the huge concentration in the production of soybean and corn and the widespread of no tillage seeding, also the use of pesticides specific for the activity, which changes the ecosystem in a significant way;
- Vulnerability in the local production of goods with international prices, such as soybean, corn and meat, which may suffer difficulties in their productive chain due to the disordering of the relative prices;
- Disordered deforesting with the opening of new areas without legal reserve, due to the absence and unavailability of areas and the high price of land, because of its speculative over valuation;
- Soil erosion, silting up of rivers and riverhead pollution, due to the bad land utilization and the lack of respect to nature, justified by the high costs of preservation and the producers lack of money;
- The animal production manure show a high pollution potential and very harming to the environment. If they are not correctly treated in the production sites and or channeled to be transformed in fertilizer, with an incorrect use, the animal waste may cause irreparable harm to the environment, mainly in the rivers. The higher risk occurs because of the huge production of pork;
- Pockets of poverty are developed around the urban centers, because of the migration of unskilled workers attracted by the euphoric economic growth, having as consequence the increase in violence and criminality, forcing the government and the companies increase security costs;
- Social risk of unordered growth, once the migration of people

usually is greater than the migration of capital, causing urbanization problems to the cities, and in the future, to attend the collectivity, mainly with public services.

Oportunities

- Support of the science and technology funding and executing institutions, linked to the sustainable regional growth, under coordination of titled researchers present in the colleges and universities in the Cluster;
- Technological development already existent in the production of soybean, corn, poultry and pork, is a factor which can be used in the development of other activities, based on the knowledge already existing and that can be used in other activities, from a look back in the activities already developed and which were successful or failed;
- Great knowledge accumulated with the professors in the local schools, in quality and quantity, who may be directed to participate in big projects, from a better definition of the region real priorities;
- Huge quantity of school and research centers existent in the two municipalities, with a long list of work already done and others still under development, be them on the local reality, or about generic knowledge, anyway, useful for equating and understanding the local problems;
- Potential investment capacity in the agroindustrial area, mainly in the food processing, textile and inputs for cattle raising and farming, due to the abundance of raw material and, in the case of the inputs for cattle raising and farming, also for the existence of a strong market, still not very well supplied by the local business;
- Excellent investment opportunities in the ecological and adventure tourism, because there are a high number of natural interesting sites all over the Region and the growing demand for this type of activity in the country and in the world, which may even attract tourists from abroad;
- Fertile land, abundant rain, rivers for irrigation in the various hydrographic basin well defined which give the Region a favorable situation for its agriculture expansion, giving record harvests and good position in the productive ranking in the state and country;

- The animal waste may be transformed in efficient fertilizers for the grain and forage production, it just need to be adequately stabilized before it is used. The economic benefit of the system of grain production with the use of animal dejects are greater than the costs. The dosage of the animal deject should obey the suggested one.
- Abundance of support services to the productive capacity, such as planning and assistance, in its majority, for the agricultural production, represented by the private offices of accounting, planning and control and of technical assistance, as well as by the associative entities and cooperatives and by the public institutions;
- Strong and close union of the local community, between producers and associated, school and research and municipal public institutions, in research work, data gathering and activities applied in the solution of local problems, mainly those which interfere in the level of knowledge and economic production;
- Rich mineral reserve, making it possible to be commercially explored, needing only a better knowledge of the market and the necessary resources to explore and process them;
- Existence of finance opportunities through the entrepreneur and federal public funding schemes, with very attractive interest rates for Brazilian context, in average 10.2% per year and advantageous maturity for the entrepreneur, with up to 3 years of time to liquidate the first installment and 12 years to pay the total loan;
- Through the state level support programs the industrial sector may get fiscal benefits, in starting a new company or for expanding one already existent. The programs are operated by the State Government of Goiás. The benefited company effectively uses 65.7% of the generated sale taxes, as payment for the financing costs at 2.4% per year, and mortgage with discounts of 30% to 100%, during 7 up to 15 years, depending on the activity and the social and economic benefits generated by the business.

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CHAPTER 3
THE CLOTHING INDUSTRY CLUSTER IN GOIAS - BRAZIL

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1 INTRODUCTION

Brazil has undergone great economic growth, and its origin as a colony for exploitation of riches, asylum for criminals and slave manpower (both black and indigenous) served as the scene for widespread racial and religious miscegenation (with respect to beliefs and syncretism), great capacity for production of primary products, territorial expansion and, unfortunately, widespread corruption, delay in implementing social priorities(education, healthcare, housing and public safety) leading to a manpower structure incapable of taking advantage of the country's strengths.

As it has grown in importance on the global scene, Brazil has seen its industrial development move inland, creating development in micro-regions which have frequently arisen due to their natural vocation or to segments developing and causing many companies in the same sector to come together geographically, forming clusters, as described by one of the most renowned experts on the topic, Michael Porter (1989)

Due to its continental size, Brazil has the potential for producing a wide range of products on a huge scale, and it has sufficient internal demand to absorb much of its own production. Many segments have formed clusters throughout the country. This article presents the Goiás Cluster in the Clothing Manufacturing Segment. Goiás is ninth in economic growth nationally, and the manufacturing cluster is the 2nd largest employer in the state; it is estimated together with informal labour, it accounts for 85 thousand jobs, 8% of the entire Goiás workforce.

Using the Diamond Model as a guide, this article aims to follow the established methodology, using a deductive model as an option for establishment of premises through a macro environmental system of logic (the emerging countries being the basic panorama used) along with the minor premise for Goiania, the capital of Goiás. After clarifying the definition of regional development and cluster, an analysis of the scene of the segment in Brazil is made, finalizing with data collection for Goiás. The article ends with a closer look at the city of Goiania, and the Goiania Station case, presenting in conclusion its SWOT matrix, the Diamond Model and proposals for improving the sector.

1.1 Research Methodology

Method consists in the ways adopted to reach the proposed objective, while methodology corresponds to the procedures and rules used for a certain method.

From the many methods of scientific approach, and after extensive bibliographical search, Quantitative and Qualitative Research was the method chosen. It was considered that quantitative method is characterized by the employment of quantification, both in the gathering of information as well as in the processing of data through statistical techniques, thus assuring the accuracy of the results and preventing discrepancies in analysis and interpretation.

The choice of the qualitative method was justified in that it is seen as appropriate to research related to subjectivity, values and beliefs that motivate human action; thus the content of the answers, opinions and level of confidence are interesting; not quantity but what and how the people feel, think, defend their views and values.

In order to carry out the quantitative research, it was necessary to establish the universe to be investigated. Global search means the group, the

totality of elements which have certain characteristics, as defined in a study. We define the sample as a convenient portion selected from the universe (population); it is a subgroup of the universe. Intentional non-probabilistic sampling was employed in this research, as was non-probabilistic sampling of convention, where the elements are not selected randomly. This means the research adopts an approach aimed at the more accessible components of the universe.

In order to seek a better understanding of the Clothing Manufacturing Industry in Goiás State, an exploratory quantitative research into 587 manufacturing units was undertaken in the cities of Goiania, Jaraguá, Pontalina and Taquaral de Goiás. Considering the number of inhabitants of the cities, the four cities chosen corresponds to 46,95% of the habitants of all the cities of which the clusters consist. As to the number of companies investigated, they correspond to 4,33% of the number of clothing manufacturing companies in the state. The objective of the research was to establish the most relevant factors concerning each competitor. The interviews took place in August, 2012, were conducted in person, using structured questionnaires with closed questions.

Along with the qualitative research, an analysis on perspectives and the leadership experience curve in the manufacturing segment was attempted. Interviews were held with the Secretary of state for Industry and Commerce, Mr. Alexandre Baldy; the president of the Trade Union for the Clothing Manufacturing industries of the State of Goiás (SINVEST) Mr.José Divino Arruda; the president of the Trade Union for General Manufacturing Industries of Goiania (SINDROUPAS) and the president of the Goiania Clothes Manufacturing Industries Association (AGICON) Mr.Edilson Borges Souza; Superintendent of Microenterprises of the State Secretariat for Industry and Commerce of the State of Goiás (GO-SIC), Mr. Tiago Peixoto.

2 REGIONAL AND CLUSTER DEVELOPMENT

The classic localization theories formulated by economists and German geographers during the 19th Century and the beginning of 20th are regarded as the first studies on regional development. The localization of economic activities in a geographical space was a central theme of this current of thought, which sought to explain, among other questions arising, the determining factor for the economic use of land, the reasons which lead

an industry to be located in a certain region and the causes which lead the commercial sector and services to be more thriving and diversified in some cities than in others. Emphasizing this from the point of the firm, these theories advocated that a company basically seeks to determine its 'best location' by taking into account the role of transportation and labor costs (Cavalcante, 2004, p. 59).

From the second half of 20th Century, Regional Development Theories began to appear focused on agglomeration factors, in other words, on deriving advantages from the infrastructure, flow of information and proximity to suppliers. While the classic theories basically emphasize the role of transport and labor costs for ascertaining better location of economic activities, new theories started to incorporate, along with location, the way firms and sectors could complement each other (Lopes, 2001) as a growth factor.

It is well known that economic activities tend to group themselves territorially in the same countries, regions or localities, instead of there being an equal distribution around the globe. Thus it became necessary to understand the phenomenon of grouping or agglomeration of economic activities in order to identify the advantages of firms being near to each other, in other words, the advantages of proximity as a central factor for competitiveness (Fernandes; Lima, 2007).

Recognizing the possibilities and vocation for location via company agglomeration became the corporative goal 'par excellence' for coordinating actions and stimulating innovation (Wittmann, 2003).

2.1 Clusters

Much literature is devoted to the pertinent questions of regional development and cluster formation. By these labels are understood all and any type of grouping or agglomeration of companies of the same sector, in the same geographical region. Some authors utilize the term to refer to company commercial grouping (commercial clusters) or company industrial grouping (industrial clusters) (Szafir-Goldstein; Toledo, 2006).

Clusters are common agglomerates in the current economy. However, the phenomenon has been the object of many research studies, including: Saxenian in 1994; Porter in 1998; Swann in 1998; and, Owen in 1999. Historically, the clusters have been found in a large variety of traditional

industries: textile in the north of Italy; naval construction in Glasgow, steel in Pittsburgh, automobile manufacture in Detroit (Kuah, 2002).

The cluster concept is found in the literature, when looking for more recent network-related formations between companies. This concept is associated with the development of flexible specialization processes, and has been adopted from experience analysis in Italy. The main characteristics of clusters are:

a) Geographical concentration of companies of the same industrial segment, with the establishment predominantly of the medium, micro and small companies (MPE) (Gramkow, 2000);
b) Production specialization between different organizations;
c) Great quantitative and differentiation flexibility (Gramkow, 2000);
d) Facility for new companies to enter the market.
e) Access to information and service networks. (Gramkow, 2000);
f) "Not necessarily to take into account other entities, outside the companies, such as organizations in education, research and development, technical support, financing, promotion, and others." (Lastres; Cassiolato, 2005).

The cluster initiatives can facilitate and speed up innovation, as well as stimulating commercial maturity and ensuring, over time, the economic success of the companies involved in these initiatives. These inter-organizational groupings represent an efficient instrument for the concentration of resources, dissemination of knowledge, strengthening of local factors and economies of scale (Fernandes; Lima, 2007).

According to Porter (1999), competitive success worldwide does not occur in individual and isolated cases, but usually stems from the strategies of clusters of many industries and related companies working in the same place. These industries are mutually reinforcing, and meet and converse constantly. Also, they are based on global trends.

Porter (1998) argues that cluster strategy represents new insight into the new economic map of the current globalized world. These clusters have remarkable virtual characteristics, nationwide, regionally, and at state or local level, both in advanced economies as well as in the so-called emerging countries. Clusters, with their characteristics, are a highly typical paradox, in having lasting competitive advantages.

2.2 BRICS Acronym and the Cluster Dynamic

The acronym BRIC was established in 2001 to include four countries: Brazil, Russia, India and China. These countries were classified as emerging economies, according to development scenarios of the time, which would probably would have accelerated growth in the next decade. These countries are considered to be no longer only as 'developing countries', but as nations which will play an increasingly important role on the world stage (Baumann, 2010).

In 2011, the letter "S" was added to this group, in reference to entry of South Africa - the English name South Africa -, so the term changed to BRICS, the countries that are part of the acronym BRICs, which are shown in Figure 3.1.

Figure 3.1: Map of the World with highlights for the countries that make up the BRICS

Source: MV-Experience **(2012)**

Together, these countries account for approximately 40% of world population. According to the analysis, by 2015, 800 million consumers in these countries will have a per capita income above $ 3000; this means increasing the social condition of the people rising to the middle class. Each country has the economic potential to be a leader in some sectors. The Brazilians are important producers in agribusiness, have large mineral reserves, energy and a diversified industrial base; Russians have large oil reser-

ves and natural gas; Indians excel in technological areas in general and the Chinese, in addition to having a legion of workers, have invested for the purpose of perfecting their technology and expanding their infrastructure (Baumann, 2010).

Apart from this, countries that make up the BRICS have several things in common; among them, we may highlight : recent economic stability, Gross Domestic Product (GDP) in constant growth; consumer markets at high levels, wide availability of natural resources, increased rates in the Human Development Index (HDI); value in the capital markets, investment companies in the various sectors of the economy; stable political situation; manual labor in great supply and in the process of improving qualifications; levels of production and export growth; good reserves of mineral resources; investments in sectors of infrastructure (roads, railways, ports, airports, power plants, among others); decline, albeit slow, in social inequality, rapid population access to communication systems, and capital markets (Stock Exchanges) receiving large foreign investments, investments by foreign companies in diverse industries; (Baumann, 2010).

All these factors contribute to the expectations of these countries becoming economic powerhouses in the medium term. The consumer market is a very important element in this process. Putting the members of BRICS together, approximately 42% of the world population resides in these countries. In the next sections the acronym BRICS will be discussed for each country; due to the fact that the core matter of this study is centered on Brazil, specifically in the state of Goiás, the option has been made to reverse the BRICS order, starting by the "S" of South Africa.

2.2.1 South Africa

Located in the south of the African continent, The Republic of South Africa is bordered by Namibia, Botswana, Zimbabwe, Mozambique, Swaziland, Lesotho and the Atlantic Ocean. South Africa has coastline on the Atlantic and Indian Oceans. Its climate is tropical (mostly), extreme south Mediterranean, arid tropical and of mountains. It has an area of 85,000 km² of forest, and about 2798 km of coastline (Visentini et al., 2010).

Natural resources include coal, gold, iron ore, phosphates, diamonds and copper. The discovery of diamonds in 1867 and gold in 1886 stimulated economic growth. The city of Johannesburg is the economic hub of the cou-

ntry and Cape Town is a regional economic hub key in the Western Cape (Visentini et al., 2010).

Its population in 2008 was ranked 25th in the world, with approximately 47.9 million inhabitants, and it is composed of many ethnic groups, such as Zulus, Europeans, Euro Africans, Indians, and others. The country has a life expectancy range between 44 and 48 years. Apart from this, the African continent is home to countries with low socioeconomic status; of the 42 nations with very low IDH, 35 are in Africa. The South Africa IDH was 0.683 in 2008 (Chaddha et al., 2009).

Looking at the African continent as a whole, a great diversity of languages can be seen. In addition, the living conditions of the population are poor. The African continent is economically underdeveloped. Some growth poles are due to mining, such as in South Africa, Libya, Nigeria and Algeria, and to a lesser extent, industrialization, as in the case of South Africa, one of the few nations that achieved relative political stability and which itself holds one-fifth of GDP across Africa (Chaddha et al., 2009).

The African continent is primarily agricultural. The monoculture export crops (coffee, cocoa, cotton, peanuts, etc.) alternate with subsistence crops - which are rudimentary and extensive – planted on large tracts of land and in successive years, until the soil is exhausted; another area is then sought where the same process is repeated. Produce includes: millet, sorghum, cassava, banana, beans, pepper, potatoes and yams.

Africa has one of the richest subsoil in the world, with 30% of world reserves of mineral resources. Among the minerals are included: gold (South Africa, Zimbabwe and Ghana), diamonds (Democratic Republic of Congo, Botswana and South Africa), copper (Zambia and the Democratic Republic of Congo), manganese (Gabon and South Africa), uranium (produces 35% of world total), platinum (90% of world reserves are in Africa), titanium (75% of world reserves), oil (Libya, Algeria, Nigeria, Angola and Gabon), natural gas (Nigeria , Gabon, Libya, Algeria and Egypt), antimony (South Africa), phosphate (Morocco) and coal (South Africa) (Chaddha et al., 2009).

All African countries except South Africa are part of the Third World, exhibiting the same problems that characterize the members of this bloc, compounded by the fact that in much of Africa, decolonization occurred only recently.

African industry is one of the world's poorest; its participation in the economy of the continent is limited to approximately 26% of GDP.

The textile and food industries, focused on the domestic market, are found in all countries of the continent, while in South Africa, Egypt and the Democratic Republic of Congo the main industries installed are the base industries – steel, metallurgical, power plants , and others. This circumstance underlines the fact that South Africa and Egypt are the continent's most industrialized countries (Visentini et al., 2010).

South Africa is a member of the *Southern African Development Community* (SADC) and the *Southern African Customs Union* (SACU). With the latter, South Africa was negotiating a free trade agreement with the United States. With the European Union, the country already has a free trade agreement (IMF, 2009).

In terms of logistics, infrastructure and business environment, South Africa has shown some good results; the Logistics Performance Index (ranging from 1 to 5) was 3.5 in 2008, traceability of shipments highlighted as positive and cost of domestic transportation as negative. In 2008, the cost per container to export and import was U.S. $ 1,445 and U.S. $ 1,721 respectively. And whilst on one hand, the use of mobile phones has increased rapidly, Internet use is still very low.

South African foreign trade has increased substantially in recent years. Exports grew, on average, 13.4% per year between 2000 and 2008. Imports in the same period increased on average by 16.3% per year.

Another factor to be considered is that the labor market is characterized by a low level of flexibility. According to the World Bank assessment, the score of South Africa on the labor inflexibility index (42/100) was significantly higher than the average of OECD countries (31.4). There are restrictions to be considered in the hiring and firing of employees and rigidities in wage determination. Moreover, Trades Unions have a strong presence in South Africa.

2.2.2 China

The People's Republic of China was founded in 1949. The country is divided into 22 provinces, 5 autonomous regions and 4 municipalities, and has an area of 9,561,000 km² and a population of 1.35 billion according to the official estimate of 2011 (Economic Intelligence Unit, 2012).

China is a country with one party, the Chinese Communist Party (CCP), formed in 1949, which has remained in power until the present (Economic Intelligence Unit, 2012). With the death of Mao, Deng Xiaoping

became general secretary of the PCC, becoming thus the ultimate leader of China, and ruling the country from 1976 to 1997.

When Deng Xiaoping came to power the country was in chaos, no money, no food and the institutions did not work. To change this, various measures were adopted: Decentralization of power, changing from a planned economy to a market economy, conversion of state enterprises into mixed organizations, seeking foreign investment, and other elements. Deng Xiaoping implemented economic reforms that would make China the country with the highest economic growth in the world.

Through economic changes and modernization in the sectors of agriculture, industry and trade, military, science and technology, China has been striving for the development of clusters and political collaboration. The largest clusters observed in that country, include the following areas: i) Information Technology (IT), ii) communications equipment, iii) Mining and iv) Clothing. Of the 43 groups identified, 42 present a positive Compound Annual Growth Rate (Compound Annual Growth Rate - CAGR) in terms of participation in national exports from 1997 to 2007, which showed Chinese industries' great ability to compete globally.

The most critical factors involving the business environment of the Clusters in China are: difficult access to financing, political instability and government bureaucracy. On the other hand, China has sought for productivity and innovation. In addition to technical training programs, the state council of China has created a plan for the medium and long term for the development of science and technology in the period from 2006 to 2020. 52 scientific zones have been developed to help in promoting entrepreneurship and technology. About 800 companies have established R & D operations in China, in increasing numbers.

A favorable factor in the clusters formation is that foreign companies that are established in the country can take advantage of low tax levels (corporation tax rate for foreign companies is substantially lower than for domestic companies), and also low wages. However, many companies may fail in selling products and services to local markets due to lack of local knowledge and connections with the government; this can be critical to business success.

Another relevant factor that deserves mention is that China also has a large number of local suppliers and manufacturers, but the cost advantage of these suppliers is decreasing due to rising wages and currency appreciation. The efficiency and product quality are inferior when compared to

equivalent products produced in Japan. These qualitative weaknesses may impair product quality in the evolution of the value chain, since the availability of new production technologies is relatively low.

2.2.3 India

A country with over five thousand years of existence, India today is the world's largest democracy with a population of 1.2 billion people. India covers 3,287,263 km ² of land area, extends from the Himalayas Range in the north to tropical forests in the south, and is located entirely in the northern hemisphere.

Today India is a parliamentary democratic republic containing 28 states and 7 union territories, with the union territories being administered by the President through an administrator appointed by the President of India. The Indian constitution, which is the most extensive in the world, and which came into force on January 26th, 1950, defines the republic as sovereign, secular and democratic. The parliamentary structure is composed of two legislative chambers; the model for Indian parliamentary system is based on the British system, whose seat is at Westminster.

The reforms implemented in the early 1990s, led to a breakthrough for the Indian economy after its insertion in the global market. Active in the global economy and accumulating exports of $ 5 billions in foreign exchange, the country has, after just over a decade, accumulated 300 billions of foreign exchange earnings through its greater participation in world trade; this has included investing in industrialized countries. From 2005, even with the financial crisis, the country has maintained a growth of over 7% per year (pa), a Growth-rate achieved by the country's greater participation in world trade and its stunning population growth rate of around 1.5% pa.

Viewed from the perspective of purchasing power parity (PPP), India in 30 years has increased its participation in world GDP from 2,5% in the 80's to 5,5% in the year 2010, a performance second only to China, while developed economies declined, some dramatically, such as the U.S and the EU economies.

Compared with the major economies of the industrial sector, India's performance has been excellent; in the last decade, Indian industrial production was higher than the major economies of the world, being second only to China, with the U.S. and EU clothing sector retractions significant

in the last few years. The year of 2011, however, ended with growth on a lower level compared with the year 2008.

The Indian population is known as the world's largest democracy, with a population of over 1.2 billion people. In absolute numbers in the last decade from 2001 to 2011, there was an increase of 181 million people. Despite an average growth rate of 1.5% pa, in recent decades there has been a net decline in the rate of growth, causing the population to stabilize. Average growth for the decades from 1971 changed from declining growth of 24.80% between 1961 and 1971 to 17.64% between 2001-2011.

The IDH is lower than in other emerging countries; India currently ranks 134th place in a ranking of 169 countries, with a level of 0.547 in 2011. But the performance of the Indian IDH has shown constant improvement, if performance in the index is analyzed in a historic context, since the country has maintained an average growth of 1.38% p.a. in the period from 1990 to 2011, which is one of the best performances for developed and developing countries, and well above the world average.

According *to Economist Intelligence* (2011) 55% of the wealth generated by the country comes from the service sector, but 52% of the Indian workforce is concentrated in agriculture. Many Indians are clearly producing little, but 34% of the workforce is responsible for more than half of GDP.

To stay competitive there is an immense need for more investment in infrastructure. The World Bank (2011) estimates that by 2030, around 40% of the population will be living in urban areas, leading to twice of the total population currently living in urban centers. And the actions taken by the government regarding infrastructure investment will determine the level of sustainability and quality of life of Indians in the future.

The Indian government in recent years has been seeking investment in infrastructure through public private partnerships (PPP); the government estimates that the need for investment is about $ 1 trillion and that 50% of this capital must come from private investment..

2.2.4 Russia

With approximately 17,075,400 km ², Russia is the largest country in the world, covering more than a ninth of the total land area. Russia is also the ninth most populous nation with about 142 million people.

The country's history is rich in detail and began with the Eastern Slavs, who gained recognition and power in Europe between the 3rd and 8th centuries. This period, which was dominated by the Kiev Principality,

which adopted Orthodox Christianity from the Byzantine Empire and began the synthesis of Byzantine and Slavic cultures that defined Russian culture, ended with the break-up of this principality and its lands were divided into many small feudal states. The successor state of the Kiev Principality was the Muscovy state which reunified the Russian principalities.

By the eighteenth century, the nation had greatly expanded to become the Russian Empire, which was the third largest empire in history. From the beginnings of the Empire (1721-1917), Russia established power and influence around the world, becoming the largest and leading constituent state of the Soviet Union, which lasted from 1922 to 1991, and was the first and largest socialist constitutional state recognized as a superpower, which along with western countries played a key role in II World War.

With the end of the Soviet Union in 1991, the Russian Federation, a Federal Democracy with a bicameral legislative body, was created consisting of the Federal Council and the State Duma, which is the Russian parliament with 450 deputies.

Nowadays the office of President is held by Vladimir Putin, with Dmitry Medvedev as Prime Minister. Despite the success of Putin in elections and the weakening of opposition protests, this successful period which he enjoyed has ended in discontent of the middle classes in Moscow, the capital, and this may spread to the rest of society. Vladimir Putin in power may leadto weakening of the efforts to improve the investment and privatization climate, compounded by tense Russian-Western relations, mainly USA-Russia.

With a GDP of U.S. $ 1,858 trillion and GDP per capita of U.S. $ 10.400 in 2011 there was an increase of 4.3%, and 4% is being projected for the period 2012-16. With regard to inflation, an increase in the period of 2010, which registered 6.9 (annual %), to 8.4% in 2011 (EIU, 2011, WORLD BANK, 2012) was recorded. Concerning Russia's external debt, according to the World Bank (2012) in 2010, which is the last record, the value corresponded to 9.3% GDP; according to the EIU (2011), this is stable and it predicts that in the period 2012 -13 there will be a limited need for external financing due to small forecasted budget deficits.

Russia's energy capacity has been highlighted on the world stage. At the beginning of the XXI century Russia already had three fifths of energy produced from a coal base in the world. Currently the country is among the major producers of oil, about a fifth of the world total, and is also responsible for over a quarter of natural gas extraction. There are about six hundred

thermal plants (mainly generated by oil and gas), a hundred stations and several hydro power plants. The Russian Federation is also responsible for the extraction of large quantities of iron ore (an average of one-sixth of iron ore extracted in the world) and between one-tenth and one-fifth of all non-ferrous, rare and precious metals (Encyclopedia Britannica, 2012).

Regarding human development, Russia occupies the 66th position in the ranking of the United Nations (2011), the highest position of all the BRICS countries.

Despite a good overall picture, the Russian Federation needs to be preoccupied with certain factors and to foresee some possible risks. In the banking sector, the situation is stable, but deterioration of the global environment poses a risk to the sector. The economy continues to be highly dependent on export of energy and this may pose a risk if Putin continues for a third mandate, because this may complicate the situation for the investments and privatization.

The business environment will improve in the period 2012 to 2016 compared with the previous five years; however, the improvement is on a reduced scale (from 5.48 to 5.86 on a scale of 10) and this modest score should be due largely to recuperation from the negative impact of the economic crisis of 2009. It is expected that the investment environment will continue weak; however it is probable that some steps will be taken to attract foreign investment, such as energy projects which require special technologies and are high cost.

2.2.5 Brazil

Brazil is located in the east of South America, and was discovered in 1500 by the Portuguese. The country occupies approximately 47% in land area of this portion of the Americas, and is the fifth largest in the world. The Brazilian territory is one of the most extensive in the world, with an area of 8,514,876 km ^{2}.

Bathed by the Atlantic Ocean, the only South American countries which do not border it are Ecuador and Chile, as shown in Figure 3.2.

The country is formed by the union of the Federal District and 26 states. There is great climate diversity, due to the size of the country, with six major subtypes of climate: equatorial, tropical, semi-arid, highland tropical, temperate and subtropical (IBGE, 2012. The country is also responsible for more than 14% of global biodiversity, including the Amazon forest and

the Amazon River (considered the longest river in the world); it is the only country in the Americas to have Portuguese as its official language, and as the result of intense immigration, has significant cultural and ethnic diversity (IBGE, 2006).

According to the IBGE (Geostatistics Institute), in 2012 Brazil had 196,655,014 inhabitants. And its population is made up racially of whites, blacks and crossbred whites, blacks and Amerindians. The predominant religion is Catholicism with approximately 65% of the population; approximately 22% are Protestant, 3.2% other religions, spiritualism accounts for 2% and 8%, no religion (IBGE, 2010).

Figure 3.2: Politic Map of South America with focus on Brazil

Source: Brazilian Institute of Geography and Statistics. (IBGE, 2012)

Brazil's current legal currency is the Real (R$) and in the 21st century, after years of social and economic problems, Brazil has established itself as one of the largest economies in Latin America. Today it has hun-

dreds of trading partners and around 60% of exports are of manufactured and semi-manufactured products (Freitas, 2012).

The *United Nations Educational*, *Scientific and Cultural Organization* (UNESCO) lists important World Heritages in Brazil; for example, the historic cities of Ouro Preto (Minas Gerais), Olinda (Pernambuco), Jesuit/Guarani Missions (Rio Grande do Sul), the Pilot Plan in Brasilia (Federal District); Iguaçu National Park (Iguassu Falls on the border with Argentina), Pantanal Mato-Grossense (Flood Plain), among several others.

2.2.5.1 The performance of Brazilian Economy

Brazil has a free market economy which follows free competitive concepts, and was ranked sixth biggest economy in the world in 2011, seventh biggest economy according to the World Bank and the CIA *World Fact book* and the second biggest economy in America, with the U.S in first place, according to the *World Economic Forum,* published in 2011 (FMI, 2011).

Agriculture and Brazilian agribusiness has significantly improved its commercial balance. The WTO (World Trade Organization) in 2010 showed Brazil as the third largest agricultural exporter in the world, with a growth rate of 9.2% in 2008 and 3.5% of total GDP..

Industry, representing 28,5% of Brazil's GDP operates in various sectors, including the automobile, steel, petrochemical, computer, aircraft, and durable consumer sectors. It has the second largest industrial park in the Americas. The country also has extensive reserves of mineral resources; reserves of iron and manganese are essential for the production of raw materials and generation of export. Nickel, tin, chromite, uranium, bauxite, beryllium, copper, lead, tungsten, zinc, gold, niobium and other minerals are also extracted. According to information published by BNDES (Development Agency) in 2012, Brazil is one of the largest steel producers in the world, and has remained in the top ten in recent years.

2.2.5.2 Assessment of the country's competitiveness

Brazil today is a country that has received a great deal of attention throughout the world. The ranking of the World Economic Forum's competitiveness index measures each country in a general comparison with other countries. In 2011 there were 142 countries and Brazil was ranked in 53rd

position. Brazil thus ranked higher than India which was 56th, but was still behind China in 26th and South Africa in 50th among the BRICS group (FEM, 2012). The country rose five places in the 2012ranking, from 53rd to 48th. Among the BRICS countries, Brazil was ahead of South Africa, India and Russia, but still behind China, as shown in Table 3.1.

Table 3.1 – BRICS countries position in the global ranking of competitiveness

COUNTRY	PLACEMENT
China	29º
Brazil	48º
South Africa	52º
India	59º
Russia	67º

Source: FEM (2012)

The country's strengths which also deserve mentioning are; the size of its consumer market (196,655,014 inhabitants), the diversity of its land which, due to its size, covers three time zones and various types of vegetation, soil and climate, and this does not include the Amazon region, which is the world's largest watershed area, besides being the home of species of flora unique to this region. Brazil is also involved in space research and it is also a pioneer in the development of a biofuel, ethanol.

Agro energy, where Brazil is the world leader, is already responsible for approximately 32% of Brazil's energy. Its competitive advantage lies in the large territory and natural resources that make it possible to expand production. Table 3.2 lists the top 10 challenges on the issue of competitiveness of Brazil, according to the report of the World Economic Forum (WEF) published in 2012.

Besides the above challenges, the Report of the United Nations Organization (ONU, 2010), points to Brazil as having the third worst rate of inequality in the world. In terms of the distance between rich and poor people, this country ties with Ecuador and is second only to Bolivia, Haiti, Madagascar, Cameroon, Thailand and South Africa. It has one of the worst income distribution levels in the world. Women (who receive lower wages than men), blacks and Indians are the most affected by social inequality. In Brazil, 5.1% only of whites live on the equivalent of $ 30 per month (approximately R$ 54.00). The percentage rises to 10.6% for Indians and blacks.

Table 3.2 – The 10 challenges in the issue of competitiveness of Brazil

CRITERION	PERCENTAGE OF THE ANSWERS
Tax Rules	18,70%
Inadequate Infrastructure	17,50%
Number of Taxes	17,20%
Bureaucracy	11,10%
Restrictive Labor Laws	10,10%
Lack of Skilled Labor	7,40%
Corruption	6%
Access to finance	3,90%
Exchange Rules	2,10%
Insufficient Capacity for Innovation	1,80%

Source: FEM (2012)

The United Nations Organization points to the main causes of social inequality as being lack of access to education, unfair taxation policies, low wages and the difficulty of accessing basic services such as health, sanitation and transportation. According to the UN, 58% of the population maintains the same social profile of poverty from one generation to another. In Canada and the Scandinavian countries this ratio is 19%. This potentializes a reduction of inequality and in particular, access to quality of education.

In Brazil, for every 100 inhabitants, only 9 have a university degree (in 2010). The IDH, when adjusted for Brazilian social inequality, falls from 0.718 (a level that would put the country in the group of countries with high human development) to 0.519 (index of countries with lower human development), that is, it has an impact of 30%. In 2011, Brazil ranked in the 84th place in the IDH ranking, a very disappointing position for a country with many opportunities to rise in world importance.

The IBOPE survey (2012) found that 40% of 5th grade students are functionally illiterate. Inequality in the country is huge. The Secretariat of Strategic Affairs of the Presidency of the Republic (SAE), believes that people with a per capita family income of about R$ 291 and R$ 1,019 - the Brazilian middle class - represent 54% of the country. The extremely poor have a per capita income of R$ 81 and the poor, from R$81 to R$162.

2.2.5.3 Textile Sector in the country

According to the Brazilian Textile and Clothing Association (ABIT, 2008), the Brazilian textile sector finished the year 2008 with a turnover of

$ 43 billion, an increase of 4% over 2007 and with US$ 41.3 billion invested . The increase was attributed to the boom in the domestic market, which accounted for 92% of consumption. Also in 2007, the sector invested US$ 500 million, making the textile industry responsible for 17.5% of the GDP of the entire manufacturing sector and about 3.5% of total Brazil's GDP.

From January to May 2008, exports were US$ 929.7 million, an increase of 8.8% in relation to the same period of 2007, and from January to November, the clothing segment grew 4.07%. A few years ago, Brazil invested in renovation of its manufacturing park, increasing its competitive capacity in relation to other countries. Currently, the country's exports account for 1% of world exports, with a total of about US$ 1.3 billion (ABIT, 2012).

According to the IBGE (2012), the physical production of the national textile and clothing industry suffered a slight drop in the first quarter of 2012 compared to the same period in 2011 - 7.5% and -14.08 %, respectively. The main exported products are made from natural fibers (apart from cotton) such as woven fabrics and Home Line, while the main imported products are filaments of polyester and the plan-synthetic-tissues. The main destination of Brazilian exports is Argentina, with 27.5% of total exports in 2007, followed by the United States, with 26.2%. The Textile and Clothing Industry is the 2nd largest generator of first jobs and the 2nd largest employer in the manufacturing industry - in 2010 1.7 million employees were recorded, of which 75% consisted of female labor. This represented about 3.5% of total Brazilian GDP and a large production volume of around 9.8 billion pieces (BNDES, 2009).

The textile and the clothing industry in Brazil faced many economic difficulties in the 1980s, due to a cotton-pest outbreak in the North East that made the country a net importer rather than exporter of cotton. These difficulties were worse in the 1990s with the opening of the market as the entry of imported products competed directly with the national product, which was being produced with stagnant technology and low quality professionals.

However, in 2005 Brazil gained prominence as the fifth largest textile producer in the world. In the clothing sector, it was producing approximately 7.2 billion garments a year; it was the 3rd largest producer of mesh/net; the 5th largest producer of cloth; the 7th largest producer of wire and filaments and the 8th largest producer of cloth. In 2004, it was in 8th position among the largest producers of manufactured textiles, but in 2007 Brazil

had already jumped to 7th place and 6th place as a producer of clothing, while in 2004 it occupied the 7th position. In this segment, Brazil's market is dominated by the C and D classes (68% of the population). The largest slice of the consumer market for garments and Home Line is in B and C classes (70% of national consumption). The A class, which represents 6% of the population, is the third largest market slice, with 18% of national consumption.

The adult female market represents 41% and children, 32%. This increased consumption is due to the variety of products with short lifespan such as panties and stockings, for example. The factors that most influence the production process and demand are the seasonality of the production and fluctuations of fashion. These factors contribute to the competitiveness of the sector and the existence of outsourcing relationships (Viana, Rock, Nunes, 2008). Figure 3 presents the Clothing Manufacturing Clusters in Brazil, identified by regions, states and cities. According to Souza (2007) the main ones are:

- **São Paulo**: the city is the intellectual and financial center of the industry, concentrating the main bases of fashion and marketing and the control of national productive activities. Here are the headquarters of retail stores Zoomp, Forum, Rosa Chá and even international names like Louis Vuitton, Giorgio Armani, Hugo Boss, as well as the two clothing centers, the districts of Brás and Bom Retiro, and the city of Americana, which has developed technology specializing in artificial and synthetic fabrics production.
- **Rio de Janeiro**: the main center is in Nova Friburgo which produces mainly lingerie and is headquarters of the German company *Triumph*, and Petropolis, specializing in knitwear and winter clothing.
- **Santa Catarina**: Vale do Itajai, the main town of which is Blumenau, is one of the most advanced textile hubs in Latin America and the Brazilian center with greatest integration into the international market, being the main national exporter of knitwear and home line.
- **Ceará**: with the trend towards regional displacement of large companies, it has the stimulus of tax incentives and infrastructure provided by the state government, and is becoming increasingly

relevant on the national stage. The strong presence of companies specializing in the denim fabrics branch (jeans fabric) and cotton yarn should be highlighted. In addition to these clusters, there has also been growth towards the Midwest, where the state of Goiás and its capital Goiânia are located, focusing on research; however, its share is still very small (increased from 1.4% in 2003 to 1.9% in 2007).

According to BNDES (2009) the main characteristics of the clothes manufacturing segment are:

a) Entry of mass imports of cheaper products into the domestic market;
b) Insignificant participation in world exports and also concentration on cotton;
c) Specialization in products made from natural fibers, despite the quick increase in world's consumption of chemical fibers and blended fabrics;
d) Factory machines with a high average age, unsuited to global competitiveness; a situation where many companies are just aim for the domestic market;
e) Lack of coordination of the production chain; lacking management;
f) Wide dispersion;
g) Low personal capacity of technical and managerial staff;
h) Widespread informality, mainly in the clothing industry workforce;
i) Difficult access to credit, especially for micro, small and medium companies, which become dependent on suppliers and,
j) Existence of regional clusters of production.

It is also necessary look at some intrinsic questions. Analyzing the environmental variables, according to ABIT (2012) the main strong points of the segment are:

- Brazil has a complete productivity chain, consisting of fiber production such as cotton planting right through to fashion shows, via spinning, weaving, dressmaking;

- Investment in the sector: $ 2.5 billion (estimative), compared with $ 2 billion in 2010;
- Average clothing production figures: 9.8 billion pieces; (clothing, bedroom items, table and bath items);
- Workers: 1.7 million direct employees; add to this 8 million(of whom 75% are female labor) whose income is indirectly dependent on the industry;
- The second largest employer in the transformation industry, losing out only to food and drink (together);
- The second largest generator of the first job;
- The fourth biggest clothing production sector in the world;
- Fifth biggest textile producer in the world;
- Second biggest producer and third biggest consumer of denim in the world;
- Represents 16,4% of all employment and 5,5% of the Transformation Industry billing;
- Brazilian fashion provides one of the five major Fashion Weeks in the world;
- We have more than 100 schools and colleges of fashion;
- The second largest producer of denim (indigo serves as raw material for jeans). Today, the textile sector in Brazil makes about a 500 million of meters of denim, but exports less than 10%.

According to BNDES (2009) the main challenges of the segment are:

a) Entry of mass imports of cheaper products and cheaper clothing into the domestic market; frequently these products are of dubious origin.
b) Low participation in world exports, with focus mainly on the cotton chain; and based on textile link products, a less dynamic area with lower added value.
c) Specialization in products made from natural fibers, despite the rapid increase in world consumption of chemical fibers and blended fabrics;
d) Industry machinery in general old/outdated, with low global competitive capability;
e) Lack of coordination of the production chain, not offering an effective supply chain to business leaders and / or large retailers;

f) Low personal technical and managerial capacity and high level of informality, mainly in the clothing manufacture link;
g) Difficult access to credit that is affected by the low interest rate;
h) Drop in Brazilian exports.

3 THE DIAMOND MODEL

The Diamond Model was created by Michael Porter and presented in 1989 in his book 'The Competitive Advantage of Nations'. The purpose of the model is to increase the analysis and understanding of the competitiveness of companies and what justifies the success of some in relation to others. The Diamond model emphasizes the determining principles of national competitive advantage. According to Porter (1989) these principles are listed in four categories:

1) Factor conditions: positioning the country or region in terms of resources such as skilled labor and services with expertise, energy infrastructure and logistics, among other aspects.
2) Demand Conditions: according to the nature of the demand for the products or services offered by the companies.
3) Related Industries: related to the existence of industries which are connected and are in activities that contribute directly or indirectly the activities of the company in analysis.
4) Strategy, Structure and Rival Companies: represented by factors which are structured in the creation, organization and management of organizations in the country in analysis, combined with factors influencing internal rivalry.

3.1 The BRICS Diamond Model in the Clothing Manufacturing Sector

To show the extent of the evolution of the Clothing Manufacturing sector in the BRICS countries, each Porter Diamond Model variable (1989) is shown in Table 3.3, which compares countries. In this analysis it is important to assess how far countries have similar characteristics which go beyond economic issues. The political questions, social as well as those of economic growth, reveal serious problems of corruption, bureaucracy and informality.

Another aspect that merits attention is the low qualification level of

the agents in the process, which in turn leads to lower possibilities of innovation and technology.

Table 3.3: The BRICS Diamond Model consolidation in the Clothing Manufacture Sector

	Brazil	Russia	India	China	South Africa
Context of strategy and rivalry	Massive influx of imports of cheaper products onto the domestic market; Insignificant participation in world exports and also concentrated in cotton; Difficult access to credit, especially for micro, small and medium enterprises, which become dependent on suppliers.	In banking sector, the situation is stable, but the instability of the global environment poses a risk to the sector; Corruption.	Are weakened by the complex regulatory regime and its poor implementation, corruption, and protectionist policies.	Companies Restructure; raising Foreign investment; Bureaucracy; Governmental and political instability.	Problem in dealing with imported products; Illegal dumping of foreign products is also a threat to local producers.
Demand Conditions	Large spraying consumption; High informality, mainly in the manufacturing link.	Large domestic market; An increase of 4,3% and projections of 4% for the period of 2012-16.	Large and sophisticated consumer population, and the success of the government in promoting key industries. But the local demand is limited by the poor implementation of quality, safety and environmental standards and consumer protection laws are too weak.	Populacional size; Demographic and Psychographic Profile; Presence of sophisticated consumers; Low level of private consumption.	The domestic market has a growing population of black middle class that is increasingly sophisticated in their consumption decisions; The cluster companies increasingly develop unique products that can improve their capacity to penetrate these markets.

Related and Support Industries	Specialization in products made from natural fibers, despite the rapid increase in world consumption of chemical fibers and blended fabrics; Machinery old/outdated, without global competitiveness, where many companies just produce for the domestic market.	Large number of local suppliers; Lack of specialists in Research and Development.	They are also advantages to India with many local suppliers, and consistent availability both agricultural products, as industrialized regions with good machineries. However, the ICAs are weakened by the lack of specialists in research and development.	Sector in development; Large number of suppliers and of poor quality; availability of new production technologies.	The lack of trust and cooperation among clothing producers and textile producers hinders the ability of companies to compete effectively.
Factors Conditions	Low technical and managerial active capacity; Lack of coordination of actions of the production chain, lacking management.	Large energy capacity; The economy continues highly dependent on energy exportation and this can represent a risk; Tense Russian-Western relations; The Investment environment continues weak, however it is probable that some steps to attract foreign investment, such as stamp energy projects that require special technologies besides having a high cost.	Are helped by capital markets growth, financial services, education and administrative installations (colonial heritage), but has been severely undermined by the exaggerated public infrastructure (energy, roads, ports) and low Internet penetration (3% of the total population). While India provides strong investor protection and effective anti-trust policies.	The biggest population and consequently large number of workers; Low labor cost; High investments in physical infrastructure; Increased investments in patents; Heavy investment in education.	High cost factor (specially in labor costs); Limited access to raw materials is another major challenge for access to *high-end* market; Long lead times for delivery, reliability and poor performance, quality deterioration; Low quality of infrastructure and logistics is an additional challenge.

Source: Elaborated by research (2012)

Regarding the internal market, these countries are going through

a consumption explosion with the expansion in the lower classes and as these nations are highly populated, this impacts positively for high production today: there are people to produce and people to buy in the same country.

4 THE STATE OF GOIÁS

The State of Goiás has a population of 6,003,788 inhabitants, with 246 cities, and is located in the Midwest region of the country. The state capital is the city of Goiânia, whose foundation stone was laid on October 24, 1933 by Pedro Ludovico Teixeira, but the actual transfer of the state capital to Goiânia, came in 1937 and its official opening took place only on July 5th, 1942 (IBGE, 2010).

Until the end of the 1950s, industry in Goiás was extractive. Diamond mining emerged in the Southwest. To the north, in the Araguaia region, the rock crystal extraction reached its high-point during the 2nd World War, due to export. In recent years, as a reflection of its growth and visibility in the global market, the State of Goiás has attracted several other industry models (IBGE, 2010).

4.1 The history of Clothing Manufacture in Goiás

Goiania's first clothing manufacturers started up at the end of the 1960s; the first reported was 'Planalto Confecção', founded in 1967, which produced synthetic fabric pants, imported from Asia and produced shirts from Brazilian cotton mills. Shortly after came the 'Bulck' mfg. company; its main proposition was the manufacture of products which were different from the traditional ones, with a feminine blouses, dresses and pants mix made from knitted cotton, viscose and linen. The pieces were well prepared with cutouts and embroidery, and the small factory gained market with products called 'fad' (Souza, 2007).

In the 1970s the Hippie Fair (Figure 3.4) appeared in Goiania state capital. It was considered the largest street fair for clothing in Latin America. It originated with local home-based producers who made their pieces at home and resold them on Sunday. Today, according to Goiânia City Hall, there are more than 5000 registered stalls selling clothes of all styles, and they receive a crowd of people coming on tours from various regions of Brazil. Apart from the fair, there was also the successful case called 'Goiania Station' which concentrated 655 stores (Souza, 2007).

This concern started with small family businesses and began to grow

due to its strategic position, since the state is located in the center of Brazil with roads linking the North and Northeast to the Southeast.

At the beginning of the 1980s there was an explosion of jeans-style clothes. The state of Goiás was booming in cotton production, Goiás' clothing manufacture and took advantage of its facility for training manpower for this segment. It invested in laundries and production machinery and conquered other states by selling products different from those produced in São Paulo. One of the first companies to conquer the national jeans market was Mister Seven Jeans. This industry has achieved a good level of production with its own laundry and the products, 100% developed by Goias designers, made the company grow.

Figure 3.4 – Satellite photo of the Hippie Fair and Goiânia Station

Source: Google Maps (2012)

With the crisis in the Brazilian economy, which led to hyperinflation and rising costs of production in 1997, there was a downturn in the economy and various industries which invested in machinery and domestic production had financial difficulties. Outsourcing production began in this period, because with the overvalued Brazilian currency, the cost of production almost doubled. Then came the 'factions'(make-up workshops) market, which are small sewing shops that receive cut cloth and then make up

the final pieces, which are then taken to an outsourced laundry and finally return to the manufacturing unit just for finishing; by working with this system, industries which had 500 employees, reduced the number to less than 50 people (Souza, 2007).

Goiania's jeans products manufactured that way fueled the markets for two decades in the center west, north and northeastern regions - this fact was only possible due to the privileged logistics situation of the state of Goiás (see Figure 3.5). These markets, before served only by São Paulo and Paraná, now started to arouse interest, due to the stability of the economy (Souza, 2007).

The Goiás Clothing Clusters progressed into several cities in the state, and the city of Jaragua was key to strengthening this sector and creating jobs. Initially known for making copies of models of major brands of Jeanswear, today it is dedicated to brands.

The Jaraguá Cluster involves companies in the sectors of manufacture, make-up workshops, laundries, finishing and post-washing, embroidery, stamping, as well as distributors of fabrics, trim providers, carriers, and sector cutting, styling and modeling (SOUZA, 2007). The distribution of cities where Clothing clusters in Goiás occur can be seen with the cities in Table 3.4.

Figure 3.5 – Privileged Logistics and the Cluster in Goiás

Source: Produced by the research based on data from SEGPLAN-GO (2012)

The clothing manufacture sector in Goiás is the 2nd largest employer in the state, and with the highest rate of job informality (SEGPLAN-GO). Its participation in creating jobs in Brazil in the segment has been 4.3%. According to the Goiânia Sedem register, there are 6875 of informal clothing vendors. Considering that the other rural towns do not have any data on informality, the estimate is that for every 1,1 formal business in the state of Goiás, there are 11 informal businesses . It is thus estimated that informality generates 85 000 jobs created in the clothing sector, making up 8% of the entire workforce of Goiás (RAIS 2008).

The monthly production according to Sinvest is 26 million pieces per month, accounting for a third of GDP. The average selling price of pieces is R$ 15.00, giving a total monthly revenue of R$ 90.000.000, which represents 8.6% of the state GDP.

Goiás has experienced high economic growth over the years. The economy's performance in Goiás in the second quarter of 2012 can be confirmed by the results in farming, with higher production and productivity in the major cultures. Industry also expanded due to the transformation industry; moreover, Goiás led industrial growth throughout the country (IBGE, 2010). The state also ranked fifth among the federal units that generated more jobs and trade balance, with a surplus balance of US$ 778.3 million, which explained Goiania's good economic phase for all segments and especially clothes manufacture. The clothing segment, with its related industries, is present in most municipalities in the State of Goiás; however the main agglomerations are Goiânia, along with Trinity, Trindade, Jaraguá, Pontalina, Aparecida de Goiânia and Taquaral.

Table 3.4 – Distribution of cities with clothing clusters in Goiás

CITY'S NAME	INHABITANTS	DISTANCE FROM THE CAPIAL
Goiânia	1.256.514	0
Anápolis	324.303	56 km
Aparecida de Goiânia	442.978	15 km
Jaraguá	41.314	120 km
Trindade	98.159	26 km
Taquaral de Goiás	3.514	78 km
Pontalina	16.846	120 km
Catalão	84.964	230 km
São Francisco de Goiás	6.109	96 km
Petrolina de Goiás	10.237	70 km
Inhumas	47.572	28 km
Jatai	86.926	330 km
Rio Verde	169.611	230 km

Palmeiras de Goiás	23.245	80 km
Mineiros	51.077	430 km
Itapuranga	25.278	130 km
Hidrolina	4.029	200 km
Goianápolis	10.562	25 km
Uruana	13.816	140 km
Senador Canedo	82.712	15 km
Sanclerlândia	7.500	70 km

Source: IBGE (2010)

To understand better the Clothing Industry in Goiás State, a quantitative exploratory survey with 587 manufacturers was carried out, in the cities of Goiânia, Jaragua, Pontalina and Taquaral. Considering the number of inhabitants of the cities, the four chosen corresponded to 46.95% of the inhabitants of all the cities participating in the cluster. Considering the amount of business investigated, they corresponded to 4.33% of the number of state clothing manufacturers. The object of the research was to outline the most relevant points for each competitor. The interviews were conducted in August 2012, in person, through a structured questionnaire with closed questions.

Of the companies surveyed, all of them are formalized with all regulatory agencies of the Brazilian economy. 49% of them are configured within the Simplified Tax Contribution System, 25% as Micro-companies, 21% as Individual Micro-enterprises and 5% in other schemes. The lifetime of the companies interviewed was investigated. Most companies surveyed (52%) are more than 5 years old and only 7% have less than 1 year (the others, representing 48% are between 1 and 5 years old).

This data is of great relevance and is encouraging to the sector in showing that most businesses have survived for more than 5 years; according to data from SEBRAE (2007 *apud* Araujo 2009) this is the period where the micro companies and small businesses in Goiás show a 21.3% mortality rate. According to the Vox Populi survey (commissioned by SEBRAE, 2007 *apud* Araujo, 2009) they go bankrupt within two years of start-up.

Clothing manufacture in Goiás is concentrated in the production of women's clothing; more than 70% of industries have articles in their collection which focus on adult women.

This data is a very rich source of information for Goiânia Station marketing, which is able to direct its activities at the female audience by optimizing resources which are actually insufficient to cover investment in

all areas. Feminine products are marketed in 82% of the stores. Most stores will be focusing on women's activities

The question as to how companies advertise their products was also asked, and it is clear that respondents believe that marketing is an essential tool for promoting products; and the tools that Goiás clothing manufacturers are using are the internet and merchandising at point of sale (POS) . There is, therefore, a conflict between the use of a modern tool and a very traditional one (POS).

The Marketing Department of Goiânia Station should stimulate the search for contacts through registration and actions on social and digital media. This is interesting because in addition to being a tool that provides more metrics for identifying return on investment, it is more accessible than media like TV in Brazil.

The most important were: the difficulty in hiring skilled labor (35.48%), the heavy tax burden (27.96%) and, whilst less of a burden but no less important, management (and lack of) of working capital (13.44%) and the need for high investments in marketing (12.37%).

The fact that entrepreneurs consider that management knowledge has low impact on business and, in seeming contradiction, emphasize the difficulties in hiring skilled labor and lack of working capital, may be a reflection of this lack of management knowledge.

Companies that cater to the international market are still insignificant in number (8%); most of the production serves the domestic market and 22% the city itself, 38%, the state and 57% goes to the national domestic market.

Most of the production is not in the city itself and so it is necessary for the segment to organize itself in the city by sign-posting (because many caravans of products arrive), and maintaining websites with updated information; it may also establish links with commercial representations and strengthen brands, including increasing the *market share* in the rural areas of Goiás state and other Brazilian states.

Parallel to the above surveys, interviews were conducted with leaders of the segment and the considerations of each were analyzed on matters of relevance. Those interviewed were: the State Secretary for Trade and Industry, Mr. Alexander Baldy, the President of the Goiânia Trade Union of Clothing Manufacturers and Clothing Industries in general (SINDROUPAS) and President of the Association of Manufacturing Industries of Goiana and the State of Goiás (AGICON); Mr. Edilson Borges de Souza, Superin-

tendent of Microcompanies of Goiânia, the Secretary of State for Industry and Commerce of the State of Goiás (GO-SIC), Mr. Tiago Peixoto. The leaders above were interviewed at the International Jeans Fair, on August 15th, 2012 (Table 3.5). Also interviewed was the President of the Union of Industries of the State of Goiás (SINVEST) Mr José Divino Arrudao on July 25th, 2010; this interview took place at the Union's own center (located at Avenida Anhanguera, in the building of the Palace of Trade in downtown Goiânia).

The Qualitative research above presents quite compelling issues for the clothing cluster. With regard to manual labor, the fragility of the sector is made clear. Despite the training programs offered by Sebrae and Senai cited by the respondents, professional training is still on a limited scale in the universe involved. Training needs to be of technical, human, conceptual and management order.

Table 3.5: Opinions: Consolidation of Clothing Manufacturing Sector Leaders

MANPOWER	
Alexandre Baldy	The leading segment today, clothing manufacture, is a very representative segment for Goiás state and generates many jobs; we have thousands of companies located in various districts of the State; it is one of the economic sectors that is developing in the most diverse regions of our state, and we here in the Secretariat of Industry and Trade see that it is necessary to support and unite the business interests, demands and trade unions in an effort to bring together and attract greater benefits. Benefits in the sense of those that lead to higher aggregate knowledge, not only here from our region but from different regions of Brazil. So that we can receive buyers who will drive growth and maintain all the manufacturing sector.
José Divino Arruda	Concerning qualifications, there is the SENAI, the Federal Government program, the FADE. But what is needed is to create a mechanism for obtaining higher qualification, especially during this time of growth across all the sectors. Brazil does not have this and the clothing industry is lacking this manpower capacity. Another issue, I think, is the question of salary; today for example SENAI offers a course for industrial stitchers, the last offer of 80 places had 18 enrolled, because the salary for a seamstress is not attractive. She works in construction, earns R$ 1,000 Reais.
Edilson Borges de Souza	Today we are at a moment of transition, from the family-based industry to bigger industrial units; today Goiânia is an important center of the clothing industry in Brazil, with most companies, around 96%, micro and small businesses that are backyard enterprises. They are improving their potential through knowledge supplied by SEBRAE (Brazilian Service of Support for Micro and Small Companies) and SENAI (National Support Service for Industry of the National Confederation of Industry - CNI) entities which are giving technological support on how to manage an industry.
Tiago Peixoto	Nowadays a skilled workforce is scarce in all segments of the economy; the Government of Goiás has developed several work qualification processes in partnership with the Secretary of State for Science and Technology which develop job skills, and we know that many companies are qualifying their own employees, creating schools in their own businesses to bring qualify to their work and jobs, like the HERING company which has several empowering entrepreneurs who will work with make-up / workshops who work both for the company and for other companies. We have worked hard in this direction and we really believe that qualifying people brings results to the economy. We have been in a partnership with the SEBRAE (Brazilian Service of Support for Micro and Small Companies) and SENAI (National Support Service Industry System of the National Confederation of Industry - CNI) in qualifying many entrepreneurs in many cities of Goiás

INFORMALITY	
Alexandre Baldy	We know it is very challenging to formalize the clothing sector, but we have used a number of tools increase the level of formal employment. The State Government reached the national simple level, sub-level, so we can improve too much in this question. We are working with the Board of Trade in many municipalities so we can have the companies formalized, working with the State Program "**Goiás grows and appears**" so that we can make it clear to business people that formalization is important and necessary for access the credit. We have the People's Bank, Productive Credit which are credit lines that being offered now to the clothing sector, showing the need to be formal entrepreneurs to gain access to this credit. Informality is very high in this segment in Goiás
José Divino Arruda	We work today with an estimate of 9,500 companies. But officially in the JUCEG (Commercial Association of Goiás) registry we work with the industry average of 4,000 companies in the state and 3,700 in Goiania, forming around just over 8000. We are working with 9,500, though JUCEG does not have an exact measure of how many businesses open and close, and we have no estimate. Also our estimate is that we are talking in terms of an average of 120,000 jobs and 200,000 in informality. These informal companies, we say companies, but if we look at the entire textile chain, the entire production chain including informal production, as I said, maybe is bigger than formal labor. Why is this? Because it is not just one company; when the company is formal it employs 2, it employs 10, it employs 500; most informal units employ fewer, but there are make-up operations, sometimes not existing legally, but employing 20 people, 100 employees. These people are unregistered, working with production, so if you take for example the supply chain of these factions/make-up units being formal or informal they are the force behind the screen printing, for example, which is used in cloth manufacture, textile wholesale, all of this is part of the clothing production chain, and if we consider as well the direct and indirect jobs that the clothing industry supports by the making of jeweled & embroidered pieces, mannequins, we can see further this industry creates so many jobs.
CLUSTER	
Alexandre Baldy	The clusters in the fashion segment as a whole have not worked as they should work; obviously several cities have grown with their the productive sector units, and have invested in accordance with demands from the public sector; here we have good projects of work in the segment, with Senator Lúcia Vânia organizing the construction of 24 (twenty four) industrial warehouses with funds from the Ministry of Development, Industry and Trade of Brazil in 24 (twenty four) different counties which we can benefit those who wants to produce and also those who want to qualify those who want to add value to their products. The Department of Trade and Industry has actively participated in the Clothing industry in several respects, with support for fairs and events, carrying the brand and the consolidation of our products, attracting buyers to take our clothing to events outside the State of Goiás. The unions have also received support, being greatly strengthened by the State Government and are also part of our preoccupation with qualification and improvement of the quality of our products.
Edilson Borges de Souza	Today in Goiás State, 70% of towns are organized as poles of the clothing industry, and each city has its own specific trend; it may be underwear, jeans, fad, swimwear, children's clothes and general. Each city has its style of production.

Tiago Peixoto	Today open fairs, closed fairs are organized in malls, but Goiás is focusing on organizing vocational poles of competitiveness and clusters where the Secretary of State of Trade and Industry is supporting and building sheds so that the entrepreneur can produce his own product within these poles; these poles will be used to operate starting from the receipt of raw materials to the final product. The intention is that the entire production process is handled in these poles. This will modernize and enhance the competitiveness of the sector. We also have industrial buildings being built throughout the state, with an investment of around R$ 18,000,000.00 (eighteen million reais) obtained by Senator Lúcia Vânia through parliamentary amendment. These sheds aims to attend the large clothing industries which are going to install people who will provide service to large companies such as HERING Brazil and MARISA and others that are coming to Brazil, we believe that the vocational poles will be a great support in this work. We have great faith in the clothing sector and we know that it is of great importance for the state; we also realize that during the year 2011 and 2012 there were gaps(of understanding) between the syndicates, associations and/or federations ;there is no union among representative bodies in Goiás. We believe that with greater union the segment will get stronger; this division of interests makes it very difficult for the Superintendency to deal with the demands, because divergent demands come from all the representative bodies. We seek to meet all demands, but it is difficult and sometimes the demands do not reach us for lack of this union between the entities.
TECNOLOGY	
Alexandre Baldy	The clothing sector is improving and evolving, applying new technologies, but we are far from the ideal; we need much innovation, mainly to add value to our products and be more competitive. Important today is to innovate to compete more with increasingly higher quality products and innovative products are a result of competing with many products; we need to collaborate with innovation, reformulation of incentive laws in Goiás State. We will be defining a percentage to be invested in people skills training which can also lead to technology and innovation in the productive sectors.
Edilson Borges de Souza	With the SENAI, SEBRAE and the Union itself offering training courses for growth of the clothing industry, some industries intend to invest in the domestic and international market; these entities seek to glimpse a new reality and compete in this globalized world, because if you do not have infrastructure and modernization of your industry you're out of the market, and you just work to survive and in fact you work for domestic sales and today you see your company only operating internally; it's not going forward, it is stagnating to the point where in a few years it'll disappear from the market because new companies are emerging and it is becoming apathetic in the market. Today we have to compete worldwide and if the company does not become professional and does not adjust to the new reality with innovation, new technologies of equipment, organizational technology, administrative and production business, the tendency will be to stagnate or disappear from the market. Companies that are making the choice for modernization are able to achieve their goals and may grow 5% or 6% per year and before long become medium to large companies; the percentage is very small but the number is big because today we have in Goiânia 4070 (Four thousand and seventy) companies registered in Goiânia and we have over 10,000 (Ten thousand) who are in 'hiding' in fairs such as Hippie Fairs, Moon Fair in many points of sale around 44th Street in Goiânia Center. Today the industry employs around 40 thousand registered people and 100 000 unregistered people who are 'Factions'(make-up workshops) that are industrial clothing workshops, specialists that provide service to the clothing industry. These specialized workshops exist around the world and they're only making the cloth and not retailing. In Goiania today we've already evolved to this level, because formerly the all industries throughout the state had internally registered employees and the cost was very high; with the creation of workshops brought the cost of goods down, so the option today of the entire clothing industry is increasing its industry by increasing the workshops. Today we have workshops throughout Goiás State, every city has workshops; the HERING Industry of Brazil moved to Goiás, why did it move from the South? Because labor is easily available, our labor force has a gift for sewing; everyone in Goiás is born with the gift of sewing so everyone here already has much facility as those in the interior of Goiás in the Capital; it is easy for large companies to attract them. Today HERING is present in more than 55 cities, with large workshops in Goiás working exclusively for it, and there are other large companies in the city of Goiânia which have several workshops; this is generation of direct employment. They take the raw material, produce and deliver ready to sell.

Tiago Peixoto	What we see today is that there is a large amount of machinery and equipment that can make production more efficient; we believe that the clothing market has sought better technology, has sought to improve. But we know that the cost for this is very high and large firms that are in Goiás state and producing large-scale certainly have the latest equipment as well as quality equipment and skilled labor. We believe that over time more companies will seek further advancement because it brings more productivity and reduces fixed costs.
MARKET AND IMAGE SECTOR	
Alexandre Baldy	The image of the clothing sector when we started here in the Secretariat of Industry and Commerce I believe was misplaced and poorly positioned nationally; we've been among the four (4) biggest at national level and now we are below tenth (10th)place. We need to greatly improve the industry's image. Our quality is good but we need to learn from other regions that have good quality products, be competitive and be able to attract buyers or get products into various regions.
Edilson Borges de Souza	Goias had been in 3rd place in the national ranking of the largest clothing industries, mainly in the jeans manufacture. Today we are nationally recognized for the Jeans that we produce because we produce a differentiated value-added jeans that are hand-crafted products, clothes with handmade designs that distinguish them from those of all other states of Brazil; in reality this product is not on a production line and some a few people enjoy doing it, so we work and we are all now considered in terms of jeans - Brazil is first in creation of fashion jeans. In view of this, the industries that work with jeans and which today hold the largest financial slice of the jeans industry market are stabilizing in terms of modernization, creating new trends. Today we already have a fashion college which designs for big fashion designers. Non-support by the government for the segment meant Goiás was losing ground to the states of northern Brazilian regions which began to invest heavily in marketing. The governments of these states began investing heavily in marketing of their confections industries, this led buyers to regions distributing to the market with low prices. The Government of Goiás did not understand this threat, so we lose more and more ground and fell to 13th in the national ranking, all due to lack of management by state agencies in terms of marketing. Fashion is really very simple; you are in or you die, you're forgotten. From three years back we have been able to reverse the picture a little and we are in 7th place in the national ranking of the largest producers of clothes in Brazil and this was done with major buyers paying the big buyers to come and visit the city of Goiânia, all this without any support from any public agency or entity. Today in Goiania we are considered the only tourism business because from Thursday to Monday hotels and bars are all full because of the clothing industry; there's no other attraction in Goiania to fill the hotels. The City Hall of Goiânia, and all their managers never helped industry growth at all; it simply took advantage of this tourism industry. The State Government always promised to help with marketing structure but never helped and does not give any support and is only saying that will help and nothing happens, while other states have moved in front a long time ago. The only thing we received from Government of the State of Goiás which was very helpful was about 5 years ago when it exempted the clothing industries from out of state sales tax; lowering the tax meant that industries could gain competition traction against other states which were already using this strategy. We are always slow on this, yet we have everything possibility to be first or second in the national rankings; we have a privileged location in the country by being in the center of Brazil, we can supply all Brazil with less effort than other states in Brazil. Government programs do not prepare the foundation of the company to export and this discourages the entrepreneur. Today we have large companies that sell their products through representation. Today we are the largest employer in Goias State, with more than 200,000 people working directly and indirectly for the confection segment. We believe we can duplicate this in 10 years, becoming the world's greatest, because we have the vocation to be the best in Brazil and the world; the government simply needs to rethink its policy on taxes, jobs and centralize vocational activities like marketing for the clothing industry; this would bring tourism, business tourism, increase the income of local people. The government does not give incentives for companies to grow and structure themselves. The current Secretary of the Ministry of Industry and Trade is better than his predecessors because he has more overall business vision and has been trying to bring in this new phase of development; we need to move forward in this new phase of marketing and production. The more marketing the government makes for our clothing industry, the more return it'll have with taxes and income. We have good infrastructure for distribution of products but what we lack is the marketing and the political desire.
Tiago Peixoto	The state is very well regarded, what is published about our state is that it has lots of jeans, several models of underwear and bikinis. We know that the Goiás state is very strong in these models. We sell throughout Brazil and even outside the country.

PROSPECTS OF THE SECTOR LEADERS	
Alexandre Baldy	In this year of 2012 we have the prospect of investing R$ 1,500,000.00 (One million and a half reais) which represents more than 30% of the budget of the Secretary of Industry and Commerce to support, events and attract buyers in the clothing sector. With this we hope to be among the five (5) largest of the clothing segment in Brazil. The governor has pledged to act in a solid way in the segment and today we have negotiated with the unions the creation of the Superintendency of Manufactuing of the Secretary of State of Trade and Industry, this is a personal dream of mine, to create this Superintendency and collaborate with this sector which generates thousands of jobs and adopt public policies focused and detailed to satisfy the clothing segment.
José Divino Arruda	I think this research shows, by experience, a thing we really need in our country, and not only for the clothing industry; a system of work, labor legislation. I think every industry ought to unite and demand of the government a project similar to that of a country with greater experience, Japan, for example. An employee enters a factory at seven in the morning and he can work until eight in the morning; so you work for one hour a day and earn at an hourly rate. But no one can survive by working only one hour a day or four hours a day. There no one works less than twelve hours a day and has a n excellent living standard. If he has a good quality of life, he does not think he has to work five hours, but he's registered in that company. The professional who knows that area and works per hour…..
Edilson Borges de Souza	The largest and most important single industry in Goiás is the clothing industry. When the current governor came to our union he promised before more than 800 entrepreneurs of the segment to create a State Superintendency of the Clothing Industry subordinate to the Ministry of Industry and Trade, and it has existed for two years and failed. The clothing segment under state government management is finished. And when another government comes in it changes everything. There has already been a meeting with the current mayor of the city of Goiânia and a Secretary of Industry and Commerce for Clothing was requested and we were ignored by the current administration of the City Hall. Our request received no reply, different from the current Secretary of State for Trade and Industry we are always meeting with, and we know that the governor is committed to clothing segment of Goiás and is structured so that the Superintendency can be deployed. There is a very large supply chain in the clothing segment.
Tiago Peixoto	We do not know the real benefit offered by the Unions to their members; we are not aware of any real service to their members. There are two or more trade unions and individual events are organized and they should unite to get better results. We do not know what they actually do for their members and even less so for the sector, but we believe that if there were more unions they could demand better results for the sector. Today we focus on the construction of industrial estates and on the qualification of the entrepreneur to manage in a professional way, whether for business plan, cash flow, customer service, to sell his product and from there we give credit to those who qualify with us because we believe it will bring better results and generate wealth and development for the state.

Source: Qualitative Research Survey (2012)

Both the informal leadership and government representatives are unanimous about the number of companies in that position in Goiás state. The importance and scope of the segment make formal structuring of the industry necessary. Investments in qualification will benefit not only the issue of manual labor, but also reduce informal working conditions as seen over the past ten years; see Institute of Applied Economic Research (IPEA, 2012).

The importance of the Cluster is perceived by everyone who believes that the segment needs more attention. Technology must receive greater

investment in general in its search for innovation. Machinery, some even quite modern, is operating on a large scale, but in the general context, it's far from ideal.

Finally, industry leaders are quite optimistic about production and are looking for investment. However, it is common in Brazil to hear political speeches promising investment, promises never fulfilled but which would be so beneficial for the segment; there should be less politics less and more commitment, strategy, and investment management.

4.2 SWOT Analysis of Goiás State

To analyze the environment where the clothing sector is installed, both from an internal and an external viewpoint, one of the tools commonly used in the strategic management of companies is the SWOT matrix, which consists of collecting important data characterizing the internal environment (strengths and weaknesses) and external environment (opportunities and threats) of the company. Considering these aspects, internal variables (strengths and weaknesses) of the clothing sector in Goiás State are as follows:

I. Strengths: differentiated products manufactured in the large centers; excellent creativity; easy access to raw material due to geographical location of the state; Presence of wholesale dealers, registered trademarks, good product quality, and entrepreneurial orientation of business owners.
II. Weakness: unskilled manpower, low investment in marketing, low working capital, high production costs; disorganized class trade unions; short supply of qualified professionals; low management capacity, outdated machinery, low production scale, low loyalty level with purchaser.

As to the external aspects and its variables (opportunities and threats) for the clothing sector in Goiás state, we conclude that they are the following:

I. Opportunity: Investing in innovation; becoming a reference in fashion products; international economic agreements; potential of the domestic market; booming economy; wide range of suppliers,

new technologies, expansion of class C and its purchasing volume; economic growth in Brazil and in Goias, improved logistics.

II. Threats: high taxes, little government support, large informal segment; imported products; little access to credit; substitute products, new technologies, and low barrier to new entrants.

4.3 Diamond Clothing Sector Model in Goiás

A) **Make-up Workshop Conditions**: the manual labor available to the Goiás clothing sector is low-skill. While there are a range of courses in the National Service of Industrial Education (SENAI) - for example, courses in production management in the clothing industry, production assistant in the clothing sector, shoe manufacture, cutters in the clothing sector, fabric cutters/tailors for the clothing sector, leather cutters/shoemakers in footwear manufacture, seamstresses in the clothing sector, management of production in the clothing industry, production management in the clothing industry, industrial modelers/tailors – meshnet seamstresses, operation of the cad audaces system for manufacture, operation of the cad lectra system for manufacture, operator of the cad / audaces system for clothing manufacture, work quality is still at a low level.

Regarding logistics in the state, the multimodal system has evolved considerably. Besides an extensive road network which connects Goiás to many Brazilian states, in the city of Annapolis (60 km from Goiânia) there is a dry port and the city has a plan for development of a cargo airport.

B) **Demand Conditions**: Goiás state distributes its production countrywide. The state is thus becoming increasingly well-known and recognized for its clothing clusters; the cities which are manufacturing centers are targets for caravan-style visits from shopping wholesalers. There are several events for promoting brands and attracting buyers and some of these events are: Expo Vestir, Cerrado Fashion Week, Goiás Vive and recently an international event at Goiana Fashion Week, the 1st International Jeans Fair. Investments in marketing, market research, development of research and development and advertising

campaigns, focus on the objectives of the Market Place, making Goiás well known and attractive to clothing trade visitors.

C) **Related Industries**: Goiás has no cloth or trimming industries, but has good distributors and support facilities: good make-up workshops, silk-screen printing/ stamping, application services for jewels and embroidery, label industries, packaging industries and a variety of transport companies for products. It needs to structure the process elements to improve cost efficiency in production and sales.

In 2012 the Senate announced the creation of a fund that aims to boost production in Goiania's clothing sector; the goal is to attract textile industries. R$ 8.8 million was allocated for the construction of industrial buildings in 28 municipalities in Goiás with the function of receiving clothing manufacturing units, which in many cases operate under precarious conditions.

D) **Strategy, structure and company rivalry**: the creation of a company in Brazil is a major challenge for any entrepreneur. Not only for all the reasons already mentioned in this research, but also due to the heavy bureaucratic machinery that makes the country one of the most difficult to do business in.

Another negative point is the way companies are set up in Brazil. According to SEBRAE research (2007 *apud* Araujo 2009, p. 14), before starting their companies, 51% of Brazilian entrepreneurs held positions in other private companies, 19% were self-employed and 15% were already entrepreneurs. "The entrepreneurial organization in these small businesses is mounted on a very simple structure, with very little formal structure, lack of standardization, few hierarchical levels and centered on the figure of the chief executive, not making use of planning procedures or training routines."

4.4 Cluster Profile in Goiânia: Origin, Characterization and Development

It is believed that the first clothing industries appeared in Goiânia during the 1960s. Some of the pioneering companies are still operating today, like, for example, 'Planalto Confecções', established in 1964, which currently manufactures pants and shirts; also 'Confecções Nova Plan' set up in

1966, producing articles of clothing, and bedroom and table items - today it only sells these products to retail. There is also 'Confecção Scala', founded in 1967 by Antonio Meneguello, today known as 'Bulk Confecções', which started the 'fad', selling to wholesale only, and which today also serves the retail market (Castro, 2004).

As they have emerged, companies have focused heavily on three areas of the city. One in Campinas sector, at Rua Miguel Alberto, formerly Bahia Avenue; another around Avenida Bernardo Sayão, in Fama sector, and a third on Avenue 85, in Marista sector, and its surroundings. In the 1980s, even with the recession which the country was facing, the clothing sector was consolidated in Goiania, mainly on Avenue 85 in Marista sector, and on Avenida Bernardo Sayão, in Fama sector (Castro, 2004).

This dynamism concentrated in sectors in Goiania contributed to the spread of clothing manufacture in the municipalities of Greater Goiânia. In the municipalities of Aparecida de Goiânia and Trindade in particular, there was significant growth in the segment (Castro, 2004).

Goiás state has 7864 companies in the clothing segment employing 73,435; of these, the city of Goiânia has 5,678 companies employing 57,278 in the segment (see table 4) (SEPLAN-GO, 2011).

In the period from 1997 to 2004, expansion of employment in the clothing industry environment was 72%, slightly higher than that of the State of Goiás as a whole (70.39%) and well above that recorded in Brazil (30.11 %). The municipalities with clusters that contributed most to this important increase were Aparecida de Goiânia (346.47%) and Goiânia (68.48%). (SEPLAN GO-2011).

The Clothing Manufacture sector is one of the fastest growing industrial sectors in Goiânia and it has become a national reference point in recent years. Besides being a major employer this segment is highly interactive locally and a dynamic participant within the economies into which it is inserted. Table 3.6 shows the clothing industries and the employment capacity in Goiás and Goiânia.

Table 3.6 – Formal companies versus jobs in the clothing segment

PLACE	TOTAL NO. OF COMPANIES	TOTAL JOBS	CLOTHING COMPANIES	JOBS IN THE CLOTHING SECTOR
Goiás	176.945	1.124.416	7.864	73.435
Goiânia	60.082	504.642	5.678	57.278

Source: SEPLAN-GO (2011)

Significant clothing industry participation in employment figures in the cluster municipalities and the large number of companies with related activities, mainly dense urban network services (UNS) that result from industrial development, reveal the high impact of the cluster on local economies.

Fairs taking place monthly in the capital of Goiás attract dealers from the north, northeast and mid-west of the country, looking for products with reasonable prices and good quality. This has greatly contributed to boosting the economy of the Goiânia region and stimulated an increase in worker yields in the clothing sector and related activities.

The geographical concentration of clothing companies in the region has attracted other chain segments and contributed to an intensification in productive relations, business and technology; for example, business associations, universities, HR (Human Resources) training institutions and state and federal support, thus showing how the existence of a Cluster has great development potential.

4.5 Proposed Improvement: Goiânia Station Case

Considering that the many of the problems identified in this research are of a structural and management order, it is proposed that ventures as described below can be encouraged and implemented in municipal industrial agglomerations. To this suggestion may be added a planning idea similar to the business incubator model, based mainly on organization, training, training of entrepreneurs, consultants and may in the future be based on 'coopetition' (cooperate to compete).

Inaugurated in end of 2007 as the Feira da Estação, this fair came to be an extension of the Hippie Fair, which is considered to be one of the largest fairs in the world and takes place in the square nearby. The Feira Hippie, as previously mentioned, is a large collection of informal clothing operations. The Feira da Estação took two years to build, and after it was opened, it was expanded to become the largest in the world. During the week the fair served as a conference center and venue for concerts and private events with a capacity for 150 thousand people and on weekends as a fashion fair with nearly 4000 stalls for street-vendors (or 'camelôs' as they are called in Brazil) . However, this was not seen as very advantageous to the participants; so their managers had to reinvent the proposal, and the

challenge was to reposition itself, getting away from its image as a huge barn with stalls of street vendors (peddlers), and moving towards a space for fashion.

The name was thus changed and started to be called Goiânia Station, remodeled from the beginning of 2012 and aimed at increasing influence on **fashion in the Midwest**. For entrepreneurs, the result of repositioning was a doubling of their turnover; there was better space utilization and streets were turned into stores, with a greater level of utilization than in the original design. Today Goiânia Station has 655 **stores** with sales in wholesale and retail packed into a covered space of **35 thousand m².** There is direct generation of 1800 jobs and another 3,000 indirect jobs linked to clothing article manufacturers, spread throughout the capital in family manufacturing set-ups. On observing how the groups of stores are arranged in Goiânia Station Shopping Center, it can be seen that more than 80% of the mix focuses on feminine products.

The managers of the enterprise have invested in training courses and qualification for new tenants and their attendants; where in the past 100% of stalls were informal, with the process of qualification, the figure for duly formalized staff reached 96% of the stores in 2012.

With its wide variety of feminine products, Goiânia Station won the preference of the Class C consumer purchasers, the 'bagwomen' (called 'sacoleiras' in Brazil) who come from many states in search of novelty, variety and competitive price at the shops which offer some of the lowest costs in the region, and potential for competitive *mark-up* of the product.

To stimulate shopping, the enterprise also offers **shopping carts**, radio system, cleaning equipment and a **security specialist**, plus space for firefighters, fire prevention and a monitoring center with trained professionals. Structurally, **large and comfortable** bathrooms, comfort station, children's play area with **supervisors** and lockers are available to customers.

All the surveys from the above research are represented in the Table 3.7; the consolidation of the Brazilian, Goiás State and Goiania City scenarios and the prospects for the Diamond Model Clothing Cluster .

Table 3.7: Consolidation of the Diamond Model Brazil X Goiás X Goiânia in the Clothing Cluster

	BRASIL	GOIÁS	GOIÂNIA
Context for strategy and rivalry	Massive influx of imports of cheaper products on the domestic market; Insignificant participation in world exports and also concentrated in cotton; Hard access to credit, especially for micro, small and medium companies, which become dependent on suppliers.	The big challenge of these companies is to compete with companies from the capital and other states and they are taking advantage of their labor (cheaper than in the capital) and lower running cost of their industries, while they are still growing	Setting up a business in Brazil is a major challenge for any entrepreneur.
Demand Conditions	Consumption very fragmented; High informality, mainly in clothing sector.	With the exception of the city of Jaragua and Goiânia the others do not receive caravans of buyers.	Known and recognized for its clothing clusters, and the visits of caravans of wholesalers shopping has become frequent in the capital. There are several events for promotion of brands and to attract buyers.
Co-related and Support Industries	Specialization in products made from natural fibers, despite the rapid increase in world consumption of chemical fibers and blended fabrics; Machinery/equipment with high average age, incapable of global competitiveness, where many companies are just meant for the domestic market.	There is a major difficulty for these clothing manufacturers since the state has no textile industries; they acquire their raw materials in capital through various retail textile stores and other companies in the production chain. Some face complicated logistics to bring their pieces weekly to laundry and other more complex processes that are not offered in their city.	In Goiânia has no textile or trim industries, but there are good distributors and support facilities: good make-up shops, screem printing / stamping, application services in jewels and embroidery, label industries, packaging industries and a variety of transport company products .
Conditions in make-up workshops	Low personal capacity in technical and managerial activities Lack of coordination of actions of the production chain, lacking management.	If there are problems in the capital for labor, the other rural cities suffer more from a lack of skilled labor, but there is an abundant supply of unskilled workers. Some successful entrepreneurs train their labor with the technicians coming from the capital to train lay people.	The manual labor operating in the Goiânia clothing sector is low-skilled. While there are a range of courses in the National Service of Industrial Education (SENAI), quality of service provision is still minimal. Regarding the logistics of the state this has evolved greatly with multimodal. Besides an extensive road network that connects Goiás to many other Brazilian states.

Source: Authors

Per week the Goiânia Station receives an estimated flow of 50 thousand people. As Goiânia receives many caravan-group buyers, the Goiânia Station has become the second largest bus terminal in the state (see Figure

3.6); its parking gets more than 200 buses and hundreds of cars from several states in Brazil for shopping. So a special service for the tour guides with an air conditioned room of 450m ² with bathroom, pantry, televisions and gaming tables is offered.

Figure 3.6 – Goiânia Station parking lot.

Source: Authors

The Marketing Department of the Station invests in constant research into customer satisfaction; in the last evaluation, perception of the buyer is that the Station is great for prices, is clean, safe, is a great place for food and is in an excellent location. It was through this research that the Station discovered the need to build a hotel for its thousands of buyers coming from other states, using their own resources; in January 2013 Goiânia's largest.hotel, with 214 rooms, will be inaugurated inside the Station.

While store vacancy is very small (below 1%), and *turnover* of the stores is high, the future challenges of the Station are still big. Where only women's articles exist in more than 400 stores, this means that many tenants are not ready for domestic competitiveness. Diversification and qualification are what are needed to correct these flaws.

5 CONCLUSION

The main challenges for the clothing industry in Brazil are: imported products, low export of clothing items, outdated machinery, lack of organization in the supply chain, much informality, low technical and managerial capacity and poor access to credit. Despite being the sixth largest producer of textiles and clothing, which corresponds to 2.5% of total production, 27.2% for China, in 2006 Brazil occupied the 46th place among the largest exporters.

Appreciation of the Real, at the same time as having difficulties in exportation, made imports more viable, promoting the provision of the internal market with products from China and a challenge to local production.

One of the variables to be urgently worked on is the issue of developing products with higher added and differentiated value, meeting the demand needs quickly. This requires heavy investment in innovation.

Brazil, being the largest market in the segment, offers a favorable scenario for strengthening the sector. Forecasts show a lower level of poverty, income inequality and an increase in the average level of Brazilian schooling; but there is still poor evolution in the quality of education. There is a need for a higher level of education of entrepreneurs, including the long-awaited insertion of entrepreneurship as a subject in schools.

It is believed that by 2022 Brazil will be among the four major economies and the trend will be of credit growth to GDP ratio and improved access for micro and small companies to credit, because there will be an increase in public and private investment in the economy. However, it is believed that low investment in the international trade will continue. It is likely that Brazil will resemble India.

It is hoped that there will be greater organization of clothing manufacturers into associations for greater competitiveness, and to exploit opportunities in the virtual environment. Higher tax exemption is also expected, along with modernization of labor relations and increased outsourcing.

Goiás State should take advantage of every opportunity presented, strengthen the points that provide their companies with some sort of competitive advantage and develop with urgency efforts to eliminate or neutralize the weak points encountered in the clothing segment. One of the alternatives is to make the State Secretariat for the Clothing Industry viable; this research encouraged this in the Department of Trade and Industry as a

project to promote the segment. The opportunities appear to be there, and even if the State is the main protagonist of several of them, if the developments are not made viable, no advantage will be gained from them.

As for the threats, in an environment where there are more weaknesses than strengths, defenses are raised and their impact is not so devastating. However, in environments with many weaknesses, threats can be critical factors of failure.

The Diamond Model in the Clothing sector in Goiás State points to the need for strong Government action regarding the formalization of the labor force and tax relief, as well as strong investment in worker training and facilitating logistics. We must also encourage developments like the Goiânia Station to appear throughout the state for better segment management. Thus, as a conclusion to this study, it is suggested that every development like this should provide something similar to the business incubator model, which, apart from the physical aspects, contributes to consulting, training and research, with the involvement of Higher Education Institutions, organs like the Trade Unions, and trade associations, as well, of course, as the Municipal, State and Federal Governments.

Thus several issues raised in this survey regarding the management of the business, planning habits and control tools must be solved, as well as giving importance to strategic vision and market analysis.

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