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Audrey Gerrard

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In 1997, the controversial agrochemical and genetically engineered seed corporate giant Monsanto purchased a Brazilian seed company for USD 70 million. Little known outside of agricultural circles, this seed company reportedly controlled 30% of the Brazilian market for hybrid and genetically modified corn seed, an essential agricultural commodity and a significant crop in Brazil, one of the world's most important agribusiness production countries. This company, Sementes Agroceres S.A. (SASA), seemed to suddenly appear in the public debate about the ever-shrinking number of corporations that owned and profited from on the world's supply of agricultural seeds, but it had in fact been operating for over fifty years. From a small local company to an agricultural systems leader, SASA was deeply entwined in the growth of agribusiness in Brazil.

The 1940s: A Vision and an Enterprise

Brazil in 1945 was a place of social and economic extremes. In the coastal regions, the tropical climate provided for vibrant cities and ports much akin to those of America or Europe. In the northwest, there was the wild land of the Amazon, sparsely inhabited by Indigenous peoples and small subsistence farmers, a remote and poorly understood region. In the central-south region, agriculture and mineral industries steadily continued much as they had for a century or so, characterised by vast discrepancies of wealth and land ownership, the notorious Latifundia estates sprawling over vast acreages, holding landless agricultural labourers in a deadlock of poverty and dependency. What this created was a case of economic duality. That is, a rapidly modernizing country largely dependent on a sluggish, old fashioned rural economy. In Brazil, this was based on cheap, disempowered agricultural labour, and scaffolded by its colonial legacy of cash cropping commodities such as coffee and cotton, that provided large profits for a few wealthy investors, but little for the people of the region of its cultivation. Indeed, in 1945, 75% of the Brazilian working population were employed in agriculture, yet there was an acute shortage of food. Agrarian productivity was so inefficient, that by 1945 the production of food had dropped to its 1932 levels, while prices rose a staggering 400% during the same time. With the population ballooning 31% from 1932 to 1945, and wages for rural workers remaining alarmingly stagnant, it was a situation ripe for social unrest, strikes, and grinding poverty.

In order to ease the tensions and alleviate poverty, it was clear to economic experts, foreign philanthropists, and the Brazilian government that agriculture needed to modernise. Since the

beginning of the twentieth century, however, reforming the agrarian system in Brazil, breaking down the Latifundia and redistributing land had proven time and again to be inflammatory and an extremely difficult power structure to combat even by the most well-intentioned and reform-minded leaders. Proper agrarian reform was a long-term goal, that needed very careful policies and shrewd politics to implement. So, to address the immediate problem of food shortages, attention turned to the question of how to improve farming techniques, to increase the amount of food that could be produced in the short term.

At this time, corn was the principal foodstuff upon which most everyday Brazilians relied. Not only was it a staple food for people, but it was also the main fodder for pigs and chickens, the animals that most households kept for food. The cultivation of corn was essential to most people, but it was poorly cultivated, hampered by outdated techniques that exhausted the soil and the labourer. Reliance upon natural rainfall in the absence of irrigation systems, mean high fluctuations in yields between drought and wet seasons. In particular, using regular corn seed harvested from the last season's crops, or 'common seed', led to poor seed quality, with limited genetic diversity, and characteristically unstable yields were compounded by being grown in depleted soils. The resulting poor yields kept small and tenant farmers in a subsistence cycle of only growing barely enough to survive on, much less sell any. If by chance, in a good harvest year, extra corn were produced, it was quickly lost due to poor storage facilities, or inadequate transport systems to take it from the farm to be sold.

To address the problems of corn cultivation, two researchers at Vicosa Technical College in Minas Gerais, Brazil, had been experimenting with hybrid seed technology to develop a strain of corn seed that could reliably produce a higher yield. Antonio Secundino and Gladstone Drummond explored how cross-breeding different types of corn could reproduce the best properties of its parent and grandparent varieties. Eager to extend their research, Secundino and Drummond took opportunities to spent time at Iowa State College in the United States, where they were exposed to the very latest in hybrid corn research, and where impressive results were being seen. Bringing their research back to Brazil, Secundino and Drummond were able to produce a high quality, high yield corn seed that in 1945, was ready to be marketed. Consequently, they and three other interested businessmen formed Agroceres Limitada to market their improved hybrid corn seed to Brazil. Initially, their business was modestly successful, and their early crops of hybrid corn seed sold well. With limited starting and operating capital, however, there was little scope for growing their company. What they needed was an injection of capital to expand their business, and it is here that this promising enterprise in agricultural improvement joined forces with the Latin American development vision of Nelson A. Rockefeller.

Rockefeller had had a longstanding personal and professional interest in Latin America, and following the Second World War he established a philanthropic organisation, the American International Association for Economic and Social Development (AIA) to continue the aid, through private means, that had been formerly delivered to the region by the U.S. government. He felt strongly that principles of development, of free trade, and positive investment were they key to improving quality of life and achieve national growth. This ideology, commonly called 'enlightened capitalism', required those with wealth to channel it into profitable enterprises that benefitted countries and communities in which they operated. Since his philanthropic organisation AIA could not support for-profit pursuits under U.S. taxation law, Rockefeller manifested his belief in enlightened capitalism in a companion-organisation that he called the International Basic Economy Corporation (IBEC).

In essence, IBEC's philosophy held that there were three ways in which foreign private enterprise could, and should, positively impact a developing country. Firstly, private enterprise provided infrastructure. Roads, machinery, factories, fences, warehouses, and other physical structures necessary to improve the efficiency, productivity, and capacity of industries. Secondly, private enterprise facilitated linkages. Connections by rail or truck or ship between production sites, storage facilities, and points of sale on one level, but importantly, it also connected different companies, businesses, and people in the same system, or network, of an industrial chain. The third role of private enterprise, particularly that of foreign businesses, was demonstration. To show how things could work, to initiate changes in industries, to provide knowledge of latest technologies and techniques, and offer training and experience to local people, were all aspects of private enterprise that were critical to its function in developing economies. All of these growth elements required one essential nutrient: capital. To provide this necessary element, and to demonstrate that for-profit business was the friend of development, IBEC was incorporated in New York in 1947, just in time to embrace the opportunity to put capital to work improving food quality through a joint venture in hybrid seed technology with Agroceres Limitada in Brazil.

The timing was perfect, with the beginning of the presidency of Eurico Gaspar Dutra, who highly favoured American relations with Brazil, and who provided policies that facilitated trade and investment. In 1947, therefore, IBEC joined forces with Agroceres Limitada to form Sementes Agroceres S.A. (SASA), a new Brazilian joint venture company for the production and marketing of hybrid corn seed. IBEC supplied the capital and network, and Agroceres Limitada, the expertise and product. Secundino would be the general manager, and Drummond the chief geneticist. Very soon, however, a more streamlined structure was needed, and Agroceres Limitada was merged with SASA. Secundino and Drummond would continue to work for SASA for the remainder of their careers. Work began immediately, and under a humble shack at the Fazenda Santa Rita, the acreage owned by IBEC in Jacarezinho in Parana, the first SASA hybrid corn crop was grown. By 1950, SASA was operating through four production centres, located in premium agricultural regions. These large farms were dedicated to cultivating the company's hybrid corn crops to produce seeds, two of which at Patos and Uba in Minas Gerais, one at Nao Me Toque in Rio Grande do Sul, and the fourth at Fazenda Santa Rita.

FIGURE 1: FAZENDA SANTA RITA, 1947, IMAGE: 'SASA PHOTOGRAPHS 1957-1960', IBEC RECORDS PHOTOGRAPH COLLECTION/SUBSERIES 2/BOX 8/FOLDER 78, ROCKEFELLER ARCHIVE CENTER

SASA faced some problems in its early stages. The diversity of geographical and climate conditions in Brazil was a basic obstacle to developing widespread seed usage. So SASA started locally, marketing seeds to farmers in the Sao Paulo, Parana and Minas Gerais regions where its hybrids had been developed in the SASA-owned land used as seed nurseries. Unfamiliarity with hybrid seed technology amongst rural farmers lead to resistance to changing age-old practices. Furthermore, one such age-old practice was to retain some seed from the last crop to be planted again, the endless cycle of farming, which was essentially free to farmers even though less reliable than the new specifically bred hybrid seeds entering the market. Due to how it is developed through cross-breeding different generations of corn plants, corn grown from hybrid seed does not produce more 'hybrid seeds' – they need to be cross-bred again. This means that if a farmer grew a field full of corn from hybridised seed, he may achieve a higher yield, but no hybrid seeds to replant, so he would have to purchase more seeds to grow next season to achieve the same yield. Many small-scale farmers living in a subsistence cycle of growing exactly enough common corn to survive and re-sow, simply couldn't afford to buy in seed rather than use their existing stock of 'common seed'. Despite attempts to educate small farmers and some agreeing to be co-opted to grow hybrid corn, it became clear that if the company were to be profitable, the key market for SASA's hybrid seeds was, at least initially, larger, wealthier landholders. These were people with more ability to take risks with growing food, who could provide larger spaces for

cultivation and labourers to do the work, and who were generally more familiar with modern science and inclined to support research ventures allied with American money. What this meant in practice, however, was a higher yield for already wealthier farmers, and an increasing gap between rich and poor in the agricultural community.

Improving agricultural yield was one thing, but improving agricultural systems was another. With the improved yields arose another problem: scarcity of capital of machinery and poor storage and transport facilities. The extra corn being grown had nowhere to be stored and unreliable means to get it to places where it could be sold. While SASA was singularly focused upon developing hybrid corn seed, its parent company IBEC was developing a variety of collaborating enterprises to address these very problems. In 1947, IBEC entered into a joint venture with American grain logistics giant Cargill to design and construct grain silos and storage facilities in Brazil. This venture, the company Cargill Agricola e Comercial S.A. (CACSA) built grain elevators at SASA's primary production sites, and furthermore, was able to negotiate with local railways to streamline transport to the Port of Santos, where CACSA constructed grain terminals for shipping. Cargill, as a longstanding grain-trading company, could easily supply ships to freight Brazilian produce. This was closely followed by companies for drop forging, building equipment, processing facilities for producing chicken feed, commercial farming of pigs, and a transport company for trucking along with a development company for improving roads and highways. Ultimately, this was all facilitated by an IBEC-financed company called Thela, that handled import and export of products, materials, and machinery for the Brazilian enterprises. By 1950, in just a few short years, the myriad of Brazilian enterprises that IBEC had kickstarted were multiplying. Indicative of the influence this organisation had in the region, IBEC Technical Services, another company established by 1950, surveyed the municipality of Sao Paulo at the request of the Governor, to assess how it could be best improved, and which worked with the Sao Paulo Tramway and Lighting Company to build and improve transport, and supplied engineering advice and skills through the creation of the Madigan-Hyland Corporation. IBEC was bringing advanced American engineering to Brazilian industry, agriculture, and to one of Brazil's fastest growing urban centres.

This was all aimed at providing a fertile ground for Brazilian agriculture and industry to grow, but was controlled by a singular source of capital. In a standard arrangement, IBEC would own 51% of the joint venture, registered in Brazil, while 49% was owned by its Brazilian partners. Most of the Brazilians who entered into these ventures, however, were Americans relocated to Brazil, or upper-class Brazilians with connections to the foreign business community. Many of the companies had mutual management and board members connected with IBEC. A significant portion of profits, therefore, left Brazil, or did not trickle down to average Brazilians, even if poorer Brazilians experienced some improvement in quality of life. While requiring a high level of capital, however, few of these ventures were greatly profitable initially. That was however not the only point for IBEC, with its mission to provide aid to Brazilians alongside for-profit investment. Directly investing in infrastructure and systems was meant to provide a positive example of how development could benefit Brazilian people. What was being indirectly invested in was development along a particular trajectory: dependency upon foreign capital.

The 1950s: Ideologies Collide

The 1950s in Brazil was an age of industrialisation. The decade opened with the re-election of the popular former-dictator Getulio Vargas as Brazil's president in 1951, and so began a period of highly nationalistic economic and social policies, in opposition to the pro-U.S. disposition of Dutra, aimed at improving the quality of life for Brazilians, reclaiming wealth from Brazil's

resources, and reducing foreign dependency. While primarily focused on industry, mining, and oil extraction, Vargas held grand visions for agrarian reform as he had during his earlier dictatorship, but despite the hopes pinned on his presidency by rural workers, these reforms were slow to materialize.

With the rise in economic nationalism, there came a significant backlash against the 'imperialism' of foreign – in particular American – investment in Brazil. Popular resentment over the control exercised by American companies lead to slogans like 'bleeding Brazilian earnings', reflecting the general feeling that a lot of wealth was being extracted from Brazil by foreign investors. Vargas felt no obligation to protect American investments or to sweeten relations with foreign companies. Quite the opposite; he considered Brazil's heavy reliance upon the United States as a threat the prosperity of the country, and sought to nationalise more of Brazil's economic activity, and keep wealth in Brazil. Consequently, in 1952, the law was changed to make it much more difficult, delayed, and unwieldly to retrieve profits from Brazilian business from outside Brazil.

These fundamental changes to Brazilian Remittance Regulations for foreign capital investments irritated, even offended, many foreign companies that had invested significant amounts of money in Brazil, often done so under the impression, at least partially, that they were in fact 'helping' Brazilians in an economic development sense. This feeling of ingratitude, and the perceived volatility of Brazilian investment, with no clear indication that anything would change, led many companies to withdraw from Brazil or sell off their share in various ventures there. In this situation, SASA had a double advantage of being a Brazilian-registered company, and one partially owned by IBEC, whose founding mission was in part profit but also a large part developmental aid. Even if financed largely by American private money, the businesses that IBEC had set afoot through its Brazilian joint ventures were in a position to keep operating at least a little bit profitably within Brazil, continue the mission to provide economic advancement assistance in the face of lower profits, and ride out the changes. IBEC was a vast and wealthy enough corporation that it did not incur much of a loss to wait longer for its 51% of profits out of Brazil. With its own lawyers and accountants based in Rio de Janeiro, IBEC could much more easily navigate the legal and administrative changes on behalf of its joint ventures and subsidiaries than some other companies newer to and less familiar with Brazil. Furthermore, this circumstance provided an opportunity to reinvest its profits into expanding its Brazilian ventures, with more companies exiting, and reasons to keep its money in Brazil. With its foothold on the traditionally powerful and relatively unchanging larger rural estates, and its contract with the government of Sao Paulo to distribute seeds, SASA was able to continue business much as before, while expanding into new production sites and developing more hybrid strains. Despite the adverse conditions, therefore, SASA was to continue to consolidate its position in Brazil. The 1950s decade was not finished with its dramatic turns in the realm of Brazilian politics. Vargas' policies had appealed to a large section of the Brazilian population, but had alienated him for significantly powerful sectors of society and government. In fact, his attitude towards resources and the benefit of the Brazilian masses had reignited fears of communist associations. Tensions mounted, and in 1954, President Vargas infamously committed suicide.

In the second half of the 1950s, SASA experienced an era of expansion. A big part of this was due to the next president to be elected, Juscelino Kubitschek, who took office in January 1956. With a very different attitude to industrialisation and economic growth, Kubitschek's administration proclaimed the slogan "fifty years progress in five!". Kubitschek welcomed foreign investment, as an essential part of his plan to rapidly inject vital growth into Brazil's industry, transport, and agriculture. He even made all imported machinery and industrial equipment exempt from tax, if it

was connected to 'associated capital'. What Kubitschek's government meant by 'associated capital' was foreign capital that was connected to, or worked together with, national Brazilian capital. This was, of course, SASA's domain. All the equipment SASA imported for their agricultural projects, from tractors to fertilizers to microscopes, were examples of 'associated capital', as the businesses they were being brought in to enhance were Brazilian-registered enterprises, and could now enter Brazil tax free. In order to maximise the benefits of nationalising capital in Brazil, IBEC made a significant business decision. A few years before, in order to expand geographically and connect their lively collection of companies operating in Brazil for loaning and guaranteeing purposes, IBEC had founded a holding company for agricultural investments, known as Empreendimentos Agropecuarios. In 1956, amidst a wave of pouring capital into SASA to fund its expansion, IBEC sold all its 51% of shares in its flagship company to Empreendimentos, its own Brazilian holding company. Alongside this stepping-away manoeuvre, IBEC needed to round-up its various agricultural, livestock, processing, fertilizer, insecticide, transportation, manufacturing and distribution companies created along the way to control every step of the value chain of the food industry. To keep up with the times, and monitor every step in the process of growing, processing, shipping, and selling agricultural products, it introduced the very cutting edge of corporate multinational modernity: it launched its own 'agribusiness' department, and re-located its domicile to Geneva, Switzerland.

Now the grandparent-company of SASA, this streamlining, offloading, and distancing under the banner of the new term 'agribusiness' was a process of corporate structural modernisation that was beginning to become a necessity as IBEC's influence in Brazil grew. By 1961, IBEC in Brazil had seven main subsidiaries in key sectors, with numerous sub-subsidiaries therein, that were interrelated in operations, management, and finance. It had retained its poultry feed enterprise, AVISCO, and its drop forging company Forjaco. Alongside these industries, IBEC owned majority shares in CODIVAL, its investment firm, Empreendimentos, along with an insurance brokerage called IBEC-Rollins-Burdick Hunter Limitada, and a machine accounting service COMPEPA. But the jewel in the crown of IBEC's vision for its Brazilian mission had been SASA, which by 1961 had expanded to six production centres in all the primary strategic areas of Brazil.

FIGURE 2: GENETICIST GLADSTONE DRUMMOND WITH FARM WORKERS AT FAZENDA SANTA RITA, PARANA, 1957, IMAGE: 'SASA PHOTOGRAPHS 1957-1960', IBEC RECORDS PHOTOGRAPH COLLECTION/SUBSERIES 2/BOX 8/FOLDER 78, ROCKEFELLER ARCHIVE CENTER

By the end of the decade, SASA's annual seed stock sales were at nearly 6000 tons, and all its carry-over stock from previous years had been sold. More than just surviving the financial crisis faced by many foreign businesses in Brazil of the 1950s, SASA won competitions for the highest and best yields in corn growing, and even brought a sixth production centre, Santa Cruz des Palmeiras in Sao Paulo, into full production. SASA hybrid seed was grown by over 63,000 farmers in Brazil. Since hybrid corn does not reproduce itself, farmers growing it were now reliant upon SASA's provision of corn seed, and the fertilizers and insecticides they produced to enhance its growth, the processing facilities to package and transport the corn owned and operated by related companies, as well as employment within them. The systems to support production, sales, and growth of the company established by its parent company IBEC were so well integrated that they could withstand the fluctuations in even Brazil's stormy economic conditions. Perhaps the crowning achievement of SASA's hybrid technology research during this time was the development of 'Opaque-2', a high-lysine variety of corn that provided extra nutritional value per serving – for people and livestock. As a sales product, it took off in a massive way, and became one of the most commonly cultivated corn varieties around the world for decades to come. Profits for the company shareholders were growing more massive, but the developmental benefit for the everyday workers and farmers were limited.

FIGURE 3: SASA CHIEF GENETICIST GLADSTONE DRUMMOND EXAMINING HYBRID CORN AT FAZENDA SANTA RITA, PARANA, 1957: IMAGE: 'SASA PHOTOGRAPHS 1957-1960', IBEC RECORDS PHOTOGRAPH COLLECTION/SUBSERIES 2/BOX 8/FOLDER 78, ROCKEFELLER ARCHIVE CENTER

The times were changing, and the way business was being done was rapidly transforming. Increasingly, the old model of interpersonal relations, of philanthropic endowments, and mentalities of benevolent, practical, economic assistance became antiquated in the face of internationalising corporations and invisible structures of finance and ownership. Brazil too was entering into a situation of forced transition. President Kubitschek was at once popular with Brazilians, and treated with suspicion. Given his close, 'champagne-glass' relationship with the foreign, and in particular American, business community, he was frequently accused of corruption, and of favouring foreign investors over Brazilian businesses. Indeed, he was in close personal contact with IBEC's senior executives, writing to them as friends; IBEC executives even organised a personal reception for Kubitschek's wife and daughters when they visited New York, and were guests of honour at the inauguration of Kubitschek's new capital city, Brasilia. Years later, when the Kubitschek family were exiled from Brazil to the United States, it was senior IBEC personnel who assisted and welcomed them. All his growth and development through looking internationally, had come at a high price. By the end of his term as president, Kubitschek had increased Brazil's national debt from 87 million cruzeiros, to 297 million, as extremely high figure. Disparities of wealth were immense, the urban centres were swelling with people leaving the countryside and as the rural workers were rioting against the unfair conditions and lack of change. When Brazilian politics dramatically altered again in 1964 with a military coup, a new era of ferocious economic development began under the Brazilian military dictatorship begun by Castelo Branco that was to last until the mid-1980s. During this notorious period of brutality, expansion, export-focused policies, and the very 'savage capitalism' so notorious of Brazilian agriculture, the

days of wealthy Americans rolling up their sleeves to bring improved farming and better nutrition to a developing nation seemed quaint and long ago.

FIGURE 4: SANTA CRUZ DAS PALMEIRAS PRODUCTION CENTRE, 1960, IMAGE: 'SASA PHOTOGRAPHS 1957-1960', IBEC RECORDS PHOTOGRAPH COLLECTION/SUBSERIES 2/BOX 8/FOLDER 78, ROCKEFELLER ARCHIVE CENTER

As the 1960s brought significant political and economic troubles to Brazil, SASA was well positioned to seize the opportunities for aggressive agricultural expansion policies provided by Brazil's tumultuous politics of the next two decades, which would become a hallmark of 'agribusiness' multinationals. As a company founded within an ideology of 'enlightened capitalism', SASA was positioned at crossroads. Could the philosophy of profit-driven motives for business being in the interest of everyday Brazilians survive into the cut-throat climate of modern agribusiness that SASA and IBEC had been so instrumental in establishing?

FIGURE 5: SASA WORKERS LOAD BAGS OF HYBRID SEED AT SANTA CRUZ DES PALMEIRAS, 1960, IMAGE: 'SASA PHOTOGRAPHS 1957-1960', IBEC RECORDS PHOTOGRAPH COLLECTION/SUBSERIES 2/BOX 8/FOLDER 78, ROCKEFELLER ARCHIVE CENTER