

THE CASHEW INDUSTRY OF CEARÁ, BRAZIL: A DEVELOPMENT ALTERNATIVE

Anne Meaney-Leckie
Department of Geography
State University College at Geneseo
Geneseo, N.Y. 14454

ABSTRACT The socioeconomic underdevelopment of the Northeast region of Brazil has been a concern of the federal government for over one hundred years. A 1959 comprehensive development plan recommended agricultural and industrial reforms to alleviate the situation. One of the reforms included the use of indigenous, drought resistant crops in the fostering of local agro-industries. The cashew industry was financed under this reform. This paper discusses the cashew industry as an element in the socioeconomic development of northeast Brazil over the last thirty years. This is accomplished by assessing the growth of the industry, the incentives offered to assist that growth, and the development of markets for cashew products. Conclusions are drawn as to the usefulness of the industry as a development option in terms of employment benefits, in-flow of capital into the region and infrastructural expansion.

INTRODUCTION

During the 1950s the Brazilian government recognized the underdevelopment of Northeastern Brazil as being the result of an unstable socioeconomic situation, which was exacerbated, but not caused, by recurrent drought. A comprehensive development plan published in 1959 recommended implementation of a reform that would decrease the dependence of the Northeastern population on the environmentally unstable land by increasing the standard of living through agricultural and industrial development. This reform was passed into law in 1960 as SUDENE I.

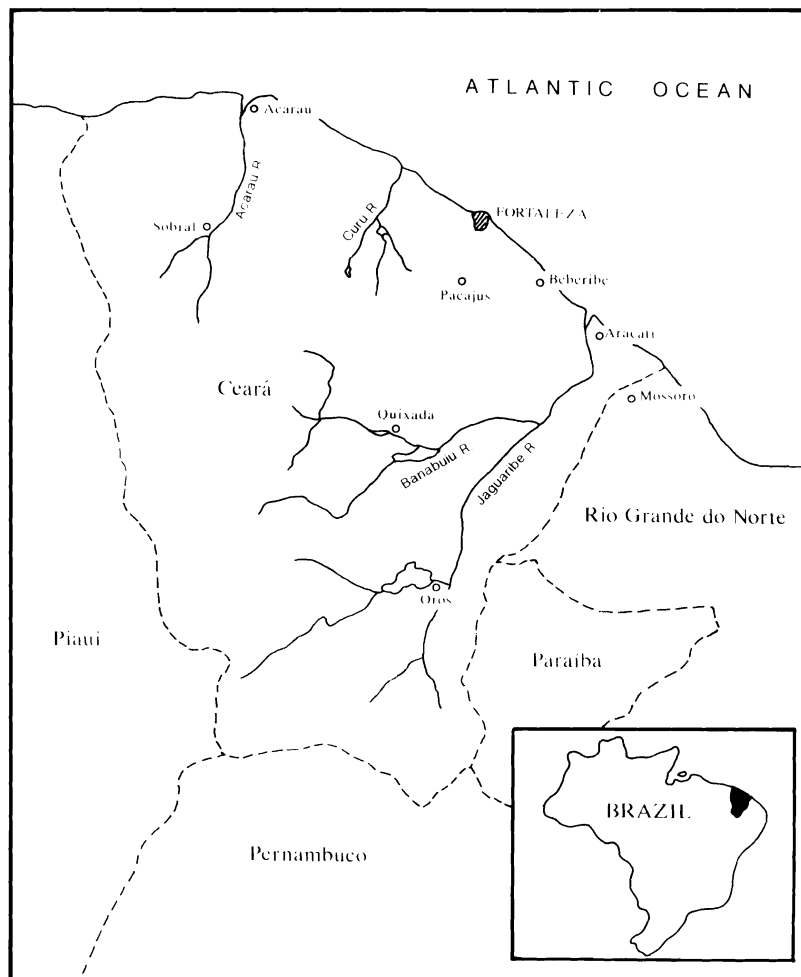
One of the projects supported under SUDENE I involved financial and technical incentives for the use of indigenous, drought-resistant crops in fostering local agro-industries. Such crops, particularly those that could be easily processed within the region, would require little capital investment, would use a large portion of both the rural and urban labor force, could find a lucrative market for the final product, and would contribute to the socioeconomic stability of the Northeast. Such industrialization would also serve to decrease the flow of capital out of the region and improve the local infrastructure.

In the late 1950s an increase in foreign demand for the cashew

kernel and the consequent increase in the global price of cashews created an optimal enterprise for SUDENE funding. The cashew tree was indigenous and drought resistant and grew in natural stands along the coasts of the Northeastern states of Ceará and Rio Grande do Norte (see Figure 1) on land too poor to support basic food crops.

Figure 1

Location Map of Ceará



Map by Brian Okey

In addition, the tree yielded three products that could be commercialized: the cashew kernel, CNSL (Cashew Nut Shell Liquid), and the peduncle. Each of these products could be easily industrialized in that little capital investment was required and the necessary semi-mechanized processing equipment could be "homemade." It was also anticipated that because of the nature of the industry and the type of harvesting, large segments of both the urban and rural populations would be employed on a semi-permanent basis, thus decreasing their vulnerability to drought.

Through the incentives provided by SUDENE I and subsequent programs all facets of the cashew industry have grown steadily over the years. Ninety percent of the cashews on the world market today are grown and processed in Northeastern Brazil, primarily in Ceará, where cashew products are currently second only to lobster's in foreign export earnings (personal communication, Rodriguez, 1987; personal communication, T.A. Falcão, 1988).

This paper discusses the potential of the cashew industry of Northeastern Brazil as part of a larger plan for socioeconomic stability and development in the region. It first describes the growth of the industry, the incentives offered to assist that growth, and the development of markets for cashew products. Through subsequent analysis one can comment on the usefulness of the industry as a development option in terms of employment benefits, in-flow of capital into the region and infrastructural expansion.

THE GROWTH OF THE CASHEW INDUSTRY

Indigenous stands of cashew trees along the Northeastern coast of Brazil were used by natives for food and medicinal purposes. After colonization of the area in the mid-1500s, the tree was cultivated by European settlers, and the kernel was used by navigators as a reserve food source on long voyages (Lery, 1770.) Through this process the cashew was disseminated to other tropical areas in the world, specifically East Africa and India. Despite this diffusion, cultivation and processing techniques remained primitive, and commercialization limited, until the 1940s.

During World War II, in return for technical assistance in aviation and general industrialization, the Brazilian government allowed the United States to run a series of expeditions through Brazil in search of raw materials that could be used in the war effort. During this time modern uses for cashew nut shell liquid were discovered, and the world became more familiar with the taste of the cashew kernel.

CNSL is one of the few natural and economic sources of phenol, an aromatic alcohol that is poisonous when taken internally and causes deep burns when it comes in contact with the skin. Traditionally the natives used it as an antiseptic and as a treatment for skin diseases such as ringworm. However, testing in the 1940s showed that CNSL could be used as a synthesizing agent in forming other chemical compounds, particularly substitutes for the various derivatives of petroleum (Holanda, 1971, personal communication, Paul Lee, 1980). Therefore, it was useful to the war effort as a petroleum substitute in ammunition, rubber, and other essential materials.

In 1943 a partially American-owned firm, Brasil Oiticica began manufacturing CNSL in Fortaleza. The manner of processing also used the kernel, which, when roasted and salted, sold well on the international market. By 1945 Brasil Oiticica had secured the American cashew kernel market from potential competitors in India and East Africa. This was primarily because of a U.S. federal regulation that required that CNSL be extracted and made available to the U.S. before any kernels were imported. The distance, the peril of the war time seas, and the primitiveness of the industry in India and Africa prevented them from becoming major suppliers (Esteves, 1961)

After the war the demand for CNSL fell, but as the world economy recovered, the demand for the kernel as a delicacy food rose. Brasil Oiticica and other vegetable processing industries realized the potentially larger market and increased their production of kernels. Through a series of contracts with local farmers the harvest of existing stands was intensified. For example the average yield of 100 hectares in 1958 was 31,481 kilograms of fruit, but by 1961 the average yield was 45,462 kilograms per 100 hectares (IBGE, 1958, 1961). In the late 1950s several small experimental plantations of cashews were established in an effort to increase the supply of raw materials. In fact, the state government had a standing offer of free seeds to anyone willing to cultivate cashews (Cavalcante and Neto, 1973). However, because the tree takes seven to eight years to mature, the investment in land and cultivation equipment was too costly for many individuals or firms to undertake. Between 1960 and 1968, for example, only 1,000 hectares of cashews were planted while in the same period the number of processing industries increased from two to seventeen. This latter was largely in response to government incentives offered.

THE CASHEW AS A DEVELOPMENT OPTION

With the SUDENE I mandate of 1960 the Brazilian government

recognized that the industrialization of local products would enhance economic development in the depressed Northeast. Therefore, a number of incentives were offered to industries willing to locate in the region, use local raw materials and employ local labor. Perhaps the most significant program directed toward the private sector was legislative article 34/18, which was introduced in 1961. Under 34/18 individuals or firms could deduct 50 percent of their income tax liability by investing an equal amount into a project, either industrial or agricultural, that had been approved by SUDENE.

The initial deposits were made into the regional development bank, Banco do Nordeste do Brasil. Originally, these investments had to be met by new equity money; however, this was later changed to make the incentives more attractive by varying the amount of new money necessary depending on the priority of the project. Priority was determined by the number of jobs created, the use of natural resources, and the existence of a finished product that could be exported to a lucrative market (Henshall and Momsen, 1974). Among the high priority projects, which could receive up to 70 percent of their funding from 34/18, were cashew processing plants. Later revisions of 34/18 allowed for top priority projects to receive up to 75 percent of their resources from government funding, to import equipment without paying tariffs, and to be eligible for federal tax reductions (see Departamento de Industrialização, 1970, and Banco do Nordeste do Brasil, 1978).

In 1960 there were two cashew processing plants in Fortaleza; by 1968 there were seventeen. In that year both the government agencies and the industry agreed that only large, well organized plantations could begin to provide the necessary raw material and avert a production crisis. The concept of vertically integrated firms was encouraged, and most of the processing firms established their own plantations. By the end of 1972 182,000 hectares had been approved for financing, but less than half were ever planted (IBGE, 1987).

However, a production crisis was not averted because at the same time that the government increased incentives for plantations, it did not decrease incentives for processing plants. By 1987 there were twenty-four processing plants in operation in Fortaleza, all of which were operating at less than 50 percent capacity and several at a fiscal loss (personal communication, T.A. Falcão, 1987; personal communication, R. Fontenele, 1987). This unequal funding of the industry and plantations decreased the efficiency of the industry. During the 1980s five processing plants were forced into bankruptcy because of a lack of raw materials (per. com. M. Rodriguez, 1987).

Despite such setbacks the industry continues as a priority for government funding primarily because a very high international demand for cashew kernels keeps the price up. In response to the production shortage in Northeast Brazil, the world price for cashew kernels leapt from \$900/ton in 1966 to \$2,500/ton in 1975 and reached almost \$5,000/ton in 1978. The price stabilized in the 1980s as production increased and a ton of cashew kernels is currently priced at \$6,200 (personal communication, M. Rodriguez, 1987).

It should be noted that in addition to the demand for cashew kernels, the world demand for pure CNSL began to rise again in the mid-1970s as petroleum prices soared and new uses for CNSL were discovered. Today CNSL can be found in over 200 U.S. patented items ranging from brake linings and electrical wiring to plastics, insecticides, and paints. Demand for peduncle products such as fruits, juices and jellies is also increasing on the national scale, but these products have yet to become popular on international markets.

The cashew industry then, received and continues to receive tremendous government incentives to develop because it uses an indigenous product, which is easily industrialized within the region and for which a lucrative market has been maintained.

THE INDUSTRY AS A SOCIOECONOMIC STABILIZER

The primary goal of the government's industrial and agricultural incentive programs was to bring socioeconomic stability to a poverty stricken people in urban and rural areas of Northeastern Brazil. The government argued that if the population decreased its reliance of the vagaries of subsistence agriculture in a drought prone area by obtaining permanent jobs not affected by the recurrent drought then the region could begin to develop. In addition, the incentives would provide an influx of capital into the region and improve the infrastructure.

Employment Benefits

Both the rural and urban labor forces in Ceará and Rio Grande do Norte benefited from the installation of the cashew industry in the region. The plantations offered a variety of jobs at different stages of their development. During the early years, labor was required to clear, plant, and maintain the land. In addition, most plantations were intercropped with annual cash crops to generate income for the first years and to provide food for the workers. Usually intercrops were removed once the plantation was in full production because the income

Despite such setbacks the industry continues as a priority for government funding primarily because a very high international demand for cashew kernels keeps the price up. In response to the production shortage in Northeast Brazil, the world price for cashew kernels leapt from \$900/ton in 1966 to \$2,500/ton in 1975 and reached almost \$5,000/ton in 1978. The price stabilized in the 1980s as production increased and a ton of cashew kernels is currently priced at \$6,200 (personal communication, M. Rodriguez, 1987).

It should be noted that in addition to the demand for cashew kernels, the world demand for pure CNSL began to rise again in the mid-1970s as petroleum prices soared and new uses for CNSL were discovered. Today CNSL can be found in over 200 U.S. patented items ranging from brake linings and electrical wiring to plastics, insecticides, and paints. Demand for peduncle products such as fruits, juices and jellies is also increasing on the national scale, but these products have yet to become popular on international markets.

The cashew industry then, received and continues to receive tremendous government incentives to develop because it uses an indigenous product, which is easily industrialized within the region and for which a lucrative market has been maintained.

THE INDUSTRY AS A SOCIOECONOMIC STABILIZER

The primary goal of the government's industrial and agricultural incentive programs was to bring socioeconomic stability to a poverty stricken people in urban and rural areas of Northeastern Brazil. The government argued that if the population decreased its reliance of the vagaries of subsistence agriculture in a drought prone area by obtaining permanent jobs not affected by the recurrent drought then the region could begin to develop. In addition, the incentives would provide an influx of capital into the region and improve the infrastructure.

Employment Benefits

Both the rural and urban labor forces in Ceará and Rio Grande do Norte benefited from the installation of the cashew industry in the region. The plantations offered a variety of jobs at different stages of their development. During the early years, labor was required to clear, plant, and maintain the land. In addition, most plantations were intercropped with annual cash crops to generate income for the first years and to provide food for the workers. Usually intercrops were removed once the plantation was in full production because the income

they provided was no longer necessary.

A large plantation requires a high concentration of unskilled labor for a three- to five-month period during the harvest. This labor force is usually made up of women and children who often migrate between plantations. A smaller number of permanent jobs in caretaking and maintenance are available for men. In all, about 60,000 people are employed by plantations during a harvest (Meaney, 1983). It has also been shown that these jobs have not been affected by droughts (see DNOCS, 1985).

The cashew processing plants also employ a large number of people. In 1960 the two processing plants in existence employed about 600 people. Today the twenty-four nut-processing firms employ about 17,000 people. In addition there are 17 fruit-processing firms that have over one-half of their production in peduncle products and employ about 1,500 people. The entire cashew processing industry, then, employs just under 20,000 people, or 40 percent of the industrial workers employed in Ceará (IBGE, 1987). The employees of the cashew industry are largely women drawn from the urban fringe; fringe made up of families who have fled the interior in the face of drought, are largely unskilled, and are generally a drain on the economic stability of the city and state.

The cashew industry, then, has served to pull people away from the drought-prone interior back toward the coast and employs people who had previously been vulnerable to the effects of the droughts. In 1968 the coastal area was inhabited by less than 20 percent of the population of Rio Grande do Norte and Ceará. Land was inexpensive, plentiful, and useless for the cultivation of subsistence crops. With the thrust to increase the source of raw materials for the cashew industry much of the land along the littoral of Ceará and Rio Grande do Norte was brought up and converted into cashew plantations. Today almost 40 percent of the population of Ceará and Rio Grande do Norte live in the coastal region, many employed by the cashew industry.

Capital Investments

The incentives encouraged investment in the region by offering tax advantages and supplementary funding. A number of large firms took advantage of these offers and became involved in cashew ventures in the Northeast as tax shelters (Cavalcante and Neto, 1973). This allowed for an influx of capital into the region that otherwise would not have been there. The income generated by the industry has encouraged local entrepreneurs to stay in the region and to reinvest profits in other development opportunities, such as the vertical

integration of cashew processing plants with plantation development. Thus, the tendency for profits to be filtered out of the region to the South or exterior is reduced, the gross regional income is increased, and the growth of the local economy is encouraged. There have also been a number of "spin-off" industries, particularly in the processing of other tropical fruits such as guava and passion fruit.

Infrastructural Improvements

Fortaleza, which had good port facilities, has become the major processing and export center for cashew products, and today a paved road network, railroads, and telephone lines connect Fortaleza with most of the coastal towns. In fact, many of the towns are connected to each other. The existence of improved transportation and communication facilities has also served to decrease the vulnerability of the population in the interior to the drought because relief aid is much more easily distributed.

CONCLUSIONS

The comprehensive development plan implemented in Northeast Brazil in 1960 had as its base a reform that would decrease the effect of the recurrent drought on the population and increase the standard of living through agricultural and industrial development. Since that time many projects have been implemented with varying degrees of success. Few, however, have met those objectives as well as the cashew industry.

The cashew industry has grown beyond the original expectations of the planners primarily because of a strong international demand for its products. The market was able to absorb rapid price increases, which came about mainly because of mismanagement within the industry, without deteriorating.

It is argued that the success of the cashew industry in providing employment for the rural and urban poor, in improving the regional infrastructure and increasing the flow of capital into the region can be duplicated with the development of other crops, such as guava and passion fruit, which have growing market value. The cautions, however, would include the need for coordination between the processing industries and the producers of the raw materials, as well as a need for further study into secondary products that may be derived from a single plant.

REFERENCES

Publications

- Banco do Nordeste do Brasil. 1978. Fundo do Investimento do Nordeste (Fortaleza: Banco do Nordeste do Brasil).
- Cavalcante, R. N., and Neto, A. L. 1973. Agroindustria do Cajú no Nordeste (Fortaleza: Banco do Nordeste do Brasil).
- Departamento de Industrialização. 1970. Sistemática de Aplicação dos Recursos dos Artigos 34/18 com as Alterações 65970/69 (Recife: SUDENE).
- DNOCS. 1983 A Situação Socio-Econômica da Sêca (Fortaleza: DNOCS).
- Esteves, A.B. 1961. Industrialização da Castanha de Cajú Produzida no Ultramar Português (Lisbon: Missao de Estudos Agronomicas do Ultramar).
- Henshall, J.D. and Momsen, R.P. 1974. A Geography of Brazilian Development (London: G. Bell and Sons).
- Holanda, L. 1971. "Características Físicas e Químicas do Cajú," Ciência Agrônomo. 1(2): 115-120.
- Instituto Brasileiro de Geografia e Estatística. 1958-87. Anuário Estatístico (Rio de Janeiro: IBGE).
- Meaney-Leckie, A. 1983. "The Role of the Cashew Industry of Northeast Brazil," Proceedings of the International Geographical Union, Rural Development Commission (Aracajú: Universidade Estadual do Sergipe).
- Ministerio do Interior. 1959. Programa do Desenvolvimento do Nordeste (Rio de Janeiro: IBGE).

Personal Communications

- T.A. Falcão. Cashew Exporter. Fortaleza, Ceará.
- R. Fontenele. Owner, Irmoes Fontenele Cashew Processing Plant, Fortaleza, Ceará.

P. Lee. Chemist. Raybestos Brake Linings. Stratford, Conn.
M. Rodriguez. Banker. Banco do Nordeste do Brasil.