

PUBLIC POLICY AND DECENT WORK IN GLOBAL AGRIFOOD SYSTEMS: Melon case study in the state of Rio Grande do Norte/Brazil

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SUMMARY

Public policies are generally defined as everything that the state, the government or legally constituted and legitimized public authorities do in society (Dye, 2005; Meny; Thoenig, 1996; Stiglitz, 2000). In the specific case of agriculture and, in particular, in the global agrifood systems, governments are implementing various kinds of macroeconomic, sectoral and social policies that directly affects the performance of the businesses and the lives and work of farmers and farm workers (NORTH, 1992). In view of this, this paper seeks to find out answers to the following question: what are the differences between the effects caused by these policies, when we compare the working conditions among workers who are employed at companies in melon production and the self-employed farming families? In the search for answering this question, a multiple case study will be adopted, on businesses and farming families involved in the melon production in Rio Grande do Norte / Brazil. In addition, a bibliographic research and exploratory survey was conducted, focusing on business and farming families and their representative organizations, and documentary research in unions of rural workers, community organizations and government agencies. Special attention has been given to the articles and theses that addressed the working process in irrigated agriculture production area of Açú-Mossoró in the state of Rio Grande do Norte, Brazil. The main research tools included seminars with employers, workers and government representatives, and exploratory visits to the field, which will be continued with research on focal groups of farming families and workers.

Key-words: Public policies. Melon production. Decent work.

1. INTRODUCTION

The aim of this paper is to analyze the contribution of public policies for "decent work" in global agrifood systems, using as approach the concept and methodology of network analysis applied to public policies for agriculture, and as a case study, the melon global chain produced in "Polo Açú-Mossoró", located in the northwestern part of the state of Rio Grande do Norte, near the coastline of the Atlantic Ocean, where Brazil is closest to the European and African continents. (Figure 1).

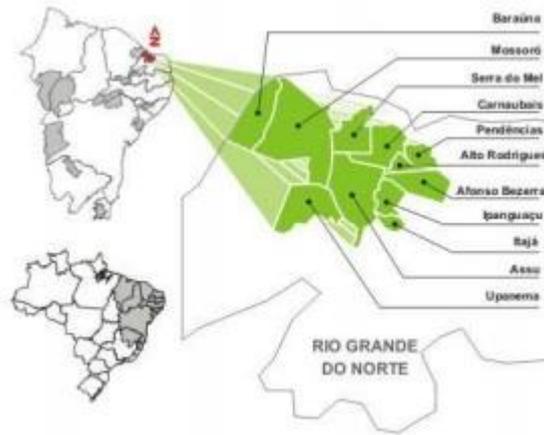
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Figure 1: Location of Polo Açú-Mossoró in Brazil, in the Northeast region and in the state of Rio Grande do Norte.



Source: NUNES & SCHNEIDER (2008)

The Polo Açú-Mossoró, also known as Polo Açú-Mossoró of Integrated Development - or abbreviated: Polo Açú-Mossoró, is one of the regions that were selected by the Brazilian government in the 1970s to promote agricultural development in the Northeast region, through public policies for agricultural development based on the production of fruits and vegetables in public irrigated perimeters, colonization projects and private companies.

As seen above in Map 1, Polo Açú-Mossoró is composed by eleven municipalities, covering an area of 6,500 km², which now is home to a population of approximately 400,000 inhabitants. This spatial demarcation has been defined as a response to a type of state action, structured around the following conceptual elements: i) a global benchmark, represented by Brazil as a global producer of agricultural commodities; ii) a sectoral framework, represented by the shift from the traditional agriculture to modern agriculture, based on the theoretical principles of "green revolution"; and a benchmark of public policy, consisting on the one hand, on the availability of water infrastructure, energy, road and air transport; and on the other, by social protection policies and productive inclusion. (Meny; Thoenig, 1996).

In the early 1970s, Polo Açú/Mossoró was limited to the confines of the Piranhas-Açu Valley, which is located inside of the larger region that is now called Polo Açú-Mossoró. The extent of idle land was very high. This used part was intended for traditional cotton farming, intercropped with subsistence crops, and cattle breeding, extensively. However, hydrogeological studies by federal and state governments indicated the existence of large reserves of groundwater and a number of alternatives for the construction of dams along the Piranhas River. On the other hand, the

soil survey that was performed then also indicated that the soil was suitable for the growing of fruit, with the help of mechanization and modern pressurized irrigation techniques, especially drip irrigation. As this gift of nature seemed too good to be true, other studies had confirmed the existence of large reserves of oil and natural gas in the Polo area of influence. With the oil crisis in the early 1970s, these findings, coupled with the proximity to the coastline northern Atlantic, already forecasted the great potential of the region for the development of three industry hub: irrigated fruit production; oil and natural gas; and tourism, the latter being reinforced by the finding of the existence of hot springs and wells in the emerging city of Mossoró.

The construction of the Armando Ribeiro Gonçalves Dam in the Piranhas River, with the capacity for 2.4 billion cubic meters of water, was the first step taken in order to ensure regular supply of water for public and private irrigation. Then, came the drilling of deep wells in the higher parts, ensuring two basic sources of water: surface, originated from the dam, for public irrigation on a large project of 22,000 hectares for small and medium entrepreneurs and farming families - only partially implemented - and irrigation in private companies, supported by subsidized rural credit policies and export stimulation.

Despite huge public investments in order to ensure infrastructure for public and private irrigation, only two social protection policies were created at that time, reflecting the weakness of representative organizations of rural workers facing the current military regime at time: the Rural Work Assistance Program (PRORURAL) and the Rural Workers' Assistance Fund (FUNRURAL), aiming at ensuring retirement for the elderly and disabled people, the base half of the minimum wage, pension and health care (LC 11, of May 25, 1971) .

However, since the 1990s, significant changes have occurred both on the side of companies and of families and employed farmers. Four of the largest irrigated melon producers went bankrupt and three of them had their land expropriated by the federal government for agrarian reform, totaling about four thousand families settled; new companies and irrigated areas were established; the international demand for fruit increased; the exchange rate was devalued; technology intensified; and production continued to grow. At the same time new social and productive inclusion policies were instituted, such as the extension of labor legislation for rural areas; social security; the National Support Program for Family Agriculture (PRONAF); the Food Acquisition Program (PAA); the Agrarian Reform Program and the National Program of Land Credit (PNCF); Family Grant Program; the Education Program for Agrarian Reform (PRONERA); and the Warranty-Harvest Program.

This new reality poses new issues for research in Polo Açú-Mossoró, in particular in regard to the effects of these policies on the working conditions of farmers and workers who are, respectively, melon producers and wage earners in melon production companies. For the employees, social protection policies are the most relevant. Farming families also can have access to social protection policies, such as the productive inclusion. What are the effects of social protection policies and productive inclusion on the living conditions of employees and farming families in Polo Açú-Mossoró? To what extent are these effects in line with the principles of decent work, as defined by the International Labour Organization?

The intellectual production on the global melon chain is immense and generally of excellent quality, including topics that range from the restructuring of production, logistics, governance, the domestic and international markets, to social labor relations, economic concentration and social exclusion in the global chain of melon produced in Rio Grande do Norte (Da Silva, 1992; Nunes, 2009; Naglia, 2013; Oliveira, 2011).

Paradoxically, only a few studies dealing with public policies are relevant to the production of melon chain. Seldom, or at least as it is known so far, those happen to be the studies that analyze public policies and their relationship with labor conditions and, in particular decent work in the various forms of work organization, that is, company-employed workers and the self-employed in family production groups.

Given the above, this paper is divided into the following items, besides this introduction: item 2, which deals with the concept of public policy and, in particular, the typology and the analysis of public policies applied to the global melon chain; item 3, which examines the working conditions in businesses and family units of production in the light of the concept of decent work; and item 4, which presents the conclusions and recommendations for following research.

2 PUBLIC POLICY AND ITS ACTORS: CONCEPTS AND TYPE APPLIED TO SUPPLY CHAIN MELON

2.1 Some important theoretical and methodological elements for the analysis of public policy

Public policy is generally defined as everything that the governments do or do not do deliberately; as the result of the exercise of authority vested in government and political and social legitimacy; as a set of registered decisions on a plan, program or project for a sector of society or for a given geographical area; as the result of the actions included in this plan; or, by the academic point of view, as an area of knowledge that aims at studying the state in action, that is, the state structured around public policies of economic and social nature, analyzing and proposing changes

during the course of these actions. (Dye, 2005; Meny; Thoenig, 1996; Jobert; Muller, 2007; Souza, 2006).

In fact, the state or the representing governments do many things in contemporary democratic societies; much more than they did in the distant past, when the duties of the state was limited to judiciary power, administration of public property and national defense: building infrastructure and ensuring supply of public goods and services; regulating conflicts and behavior of producers and consumers; distributing a wide range of tax and credit incentives; redistributing income; and collecting taxes in the form of direct and indirect taxes, social contributions and improvements, and having the autonomy for financing or limiting, currency issues. (Dye 2005).

However, would public policy be restricted to governments? Some authors have faced this question, in which some admit that public policy is not only the source of action, as a government-exclusive one, but taking into account the destination, that is, if the public action is focusing on a public problem. Thus, when facing the two views, statist define the concept of public policy based on the design in which the action was originated from a governmental entity. On the other hand, there is a multi-centric view that defines that the policy can emanate from the government or civil society organizations. In this sense, what characterizes a public policy is the fact that the action relates to a public problem.

Despite the multi-centric view enlarging the scope of political origin, there are still certain roles for governments. From the perspective of welfare economics, governments do many things because there are "market failures", that is, situations where the assumptions of the free market are not present, like the existence of public goods, natural monopolies, externalities, incomplete markets, asymmetric information or the occurrence of situations of unemployment and inflation. From the point of view of the neo corporatist approach, public policies are the result of joint interest between private parties, bureaucracy and political agents, setting up a kind of "orchestration of interests" that materializes in the form of a program in a given geographical area or institutional space. In the particular case of agriculture, it is added to its dependent and seasonal nature, which stems from climatic and environmental factors and biological cycles of plants and animals. (Belik, 2015; Buainain, 2007).

In fact, public policy is not something random, exogenously elaborated from the identification of a problem and received indiscriminately by all individuals of the same proportions. First, as pointed out by Secchi (2010), public policy is a process in which different actors confront themselves, and the final outcome is the result of this dynamic interaction between the various actors (policy makers and policy takers).

Moreover, social preferences are different, and to add them optimally in a democratic system is impossible (Arrow 1951), since the number of alternatives can lead to different results depending on how they are made in alternative grouping mechanism. Therefore, policies will be triggered from the interaction between the various agents and from how they influence the political process and are influenced by it.

Thus, in public policy, analyses should cover both the content, but also the symbolic aspect of policy decisions and the process of construction and operation of those decisions. So it can be said that public policies have two fundamental elements, which are public intentionality and the answer for the problem (SECCHI, 2010).

Gustafsson (1983), before these two central points had been brought up, elaborated a classic typology of public policies, distinguishing them from the criteria of knowledge and intent of the policymaker. Knowledge is defined as the technical and operational capacity to solve identified public problems, to the point that the intention is of clarifying whether there is, indeed, interest from the managers in solving the problem or not. From this concept, Gustafsson pointed to four types of policies: i) actual policies, ii) symbolic policies; iii) pseudo policies; and iv) nonsensical policies.

Table 1 - Types of Gustafsson Policies (1983)

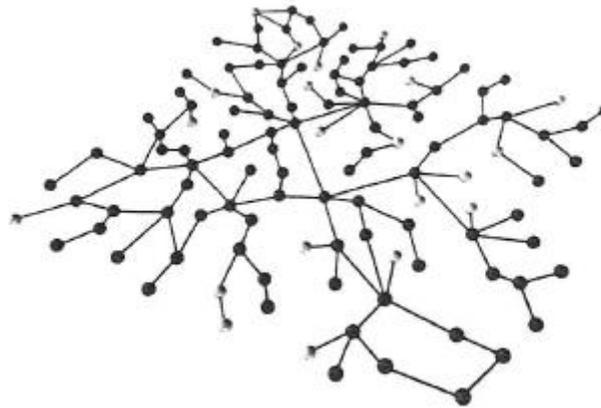
Policy	Knowledge	Intention	Process
Real	Yes	Yes	The <i>policymakers</i> have knowledge and intent to solve a public problem
Symbolic	Yes	No	The agents have knowledge to solve the problem, however, do not intend to solve it.
Pseudo	No	Yes	The agents have an interest to solve the public problem; however, they do not have sufficient knowledge for it.
Nonsensical	No	No	The agents have no interest to solve the public problem, and yet, have no technical knowledge.

Source: prepared

Therefore, several methods of policy analysis try to understand this interaction between individuals inside of the public policies process. One of these methods is the policy network analysis, which incorporates the various actors that are part of the spectrum of public policy, such as non-governmental organizations or the third sector. This model seeks to analyze the interactions

between agents, in order to map how the association pattern between the network components is (Figure 2).

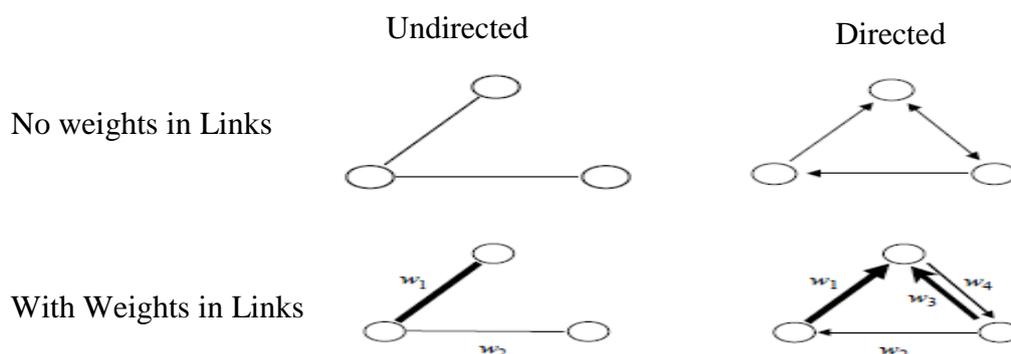
Figure 2 - Representation of a network



Source: Dulles research *apud* Secchi (2010)

Accordingly, the network is a theoretical representation of relations (links) between the components (nodes) within a given time. These links may consider the meaning of the action, that being called “directed networks”, or disregard the sense of connection between them, just watching whether or not there is a connection. Moreover, these links can carry intensity, by assigning different weights to specific connections, analyzing not only if there is a connection, but also the strength of it (Fagiolo, 2012). The Figure 3 illustrates how to apply these settings graphically.

Figure 3 - Network representation and their patterns of connection



Source: Fagiolo, 2012

From the multi-centric approach emerges a new concept of public policy analysis: political networking. This approach points to a new way of designing and implementing public policies, taking into consideration the strength of new actors in civil society and the market in the process,

together with the state and its governmental entities. Thus, the state is not a single actor in the process of public policy.

2.2 Actors and public policies in the global melon chain

In the semi-arid regions, such as the Polo Açu-Mossoró area, the occurrence of droughts can devastate crops and livestock, causing huge losses for farmers and breeders, depending on the intensity of the climate irregularities. In addition, the concentration of agricultural supply during certain months of the year can contribute for the decreasing of prices, while also causing great damage to farmers and breeders. For this reason, the first major investments in Polo Açu-Mossoró were directed at the following specific objectives:

- i) the construction of the Armando Ribeiro Gonçalves Dam, with a capacity for 2.4 billion cubic meters of water, and the drilling of deep wells for ensuring regular supply of water and minimizing the dependence of agriculture on climate conditions;
- ii) the construction of the Public Irrigation Perimeter of Baixo-Açu, designed for irrigating 22,000 hectares of agriculture;
- iii) increasing the construction of roads for the transport of the production;
- iv) the expansion of ports and airports to attract new demands, including the interest of groups of irrigated fruit production;
- v) the expansion of rural electric powering, such as the purpose of granting free access to electricity in rural establishments; and,
- vi) stimulating irrigated fruit productions of private enterprises and public irrigation perimeters.

The state acted as if they were the creator of the market, trying to correct its failures. However, when observations are made based on another theoretical model, the theory of public choice, we can say that there are also "government failures", as governments do not have all the information, or act benevolently; they have limited control over the private companies' responsiveness and the bureaucracy; and they face limitations that are imposed by the political process. Public policy was then born, so as the relations of mutual support between interest groups, parliamentarians, politicians, banks, government institutions and non-governmental and regulatory agencies of trade in agricultural commodities. (Stiglitz, 2000; Secchi, 2010).

Indeed, it was the private irrigation initiatives that drew the attention from large national and international financial groups, who did arrive at Polo Açu-Mossoró and are now responsible for most of the melon production in Polo. Public irrigation, which supposedly benefits small businesses and family farms in the Public Perimeter Baixo-Açu, was almost paralyzed. Of the 22,000 hectares

previously designed for the project, only 2,000 are in operation. The farming families settled there have faced many difficulties, in particular with regards to the high costs of operation and maintenance of the complex infrastructure, and many remain idle even now with access to public policies that until the first half of the 1990's were strictly of compensatory social assistance.

From the second half of the 1990s and on, new forms of support for family farming and policies were designed and implemented by the Brazilian government. Thus, you can see a tangle of public policies involving the actors who are part of Polo Açú-Mossoró. Therefore, seeking to achieve the goal of this paper, it was observed the existence of these public policies in this complex picture, from the four fundamental pillars of "decent work", as defined by the International Labour Organization (ILO), that is, promotion of jobs, protection and social security rights, and social dialogue, as shown in Matrix 1 below.

Table 2 - Relation between the principles of "decent work" and public policies for family farming and workers in Brazil (2016)

PILLARS	ASPECTS	PUBLIC POLICY	DESCRIPTION	ORIGIN	BENEFICIARY
Employment promotion	Access to productive resources	"PRONAF"	Credit	Federal	family farming
		Land credit	land purchase	Federal	family farming
		Expropriation	Access to land	Federal	family farming
		"Moderfrota"	Equipments	Federal	Business
		"RN Sustentável"	Associations	State	family farming
		BB Foundation	Credit	Federal	family farming
		"Crediamigo"	Credit	Federal	family farming
		"Boa água" (good water)	Access to water	Federal	family farming
		"Tarifa verde" (green tariff)	Energy subsidy	State	FF/Business
	Skills development and training	Underwater dam	Access to water	Federal	family farming
		Technical assistance	Advisory service	Federal/State	family farming
		Project incubator	business management	Federal	family farming
	Access to markets	"PRONERA"	Education	Federal	family farming
		"PAA"	Institutional Market	Federal	family farming
		"PNAE"	Institutional Market	Federal	family farming
	Fair remuneration	Government purchases	Institutional Market	Federal	family farming
		Minimum wage		Federal	wage worker
		Work laws	Working journey	Federal	wage worker
Social protection	Income security	"Bolsa verde"	Preservation	Federal	family farming
		Rural social security	Social rights	Federal	FF/wage worker
		"Bolsa Família"	Social Care	Federal	family farming
		"Garantia Safra"	"insurance"	Federal	family farming
	Working conditions	Unemployment insurance	Social Rights	Federal	wage worker
		Cistern	Social Care	Federal	family farming
Rights guarantee	Child labor	"PETI"	End of Child labor	Federal	FF/wage worker
	Gender equality	"Pronaf mulher"	"womens credit"	Federal	family farming
Social Dialogue	Regulation	Trade policy	institutional rules	WTO	FF/wage worker
	Associations	Cooperative policy	Social organization	Federal	family farming
	Associations	"RN Sustentável"	associative project	State	family farming

Source: Organization based on the principles of "decent work" and the mapping of policies for family agriculture and existing employees in Brazil (2016).

The table above summarizes how this framework of public policies is applied to workers who in melon production. However, as agriculture has some specificity in relation to aspects of decent work, highlighted by the FAO study (2012) that points out that there is only one worker category of rural farming family. Hence, some definitions of decent work need to be adapted to the reality of these farmers and their multivariate types of configuration, as a group that is pluriactive, multifunctional, and also in the form agrarian reform settlers.

To be more objective in this study, we sought to distribute the workers into two categories: the farm employees in agriculture and farming families. After making this division, it was mapped out which public policies focus on each of these two groups. For measuring the importance of the policies for the actors, a variable was assigned to each, while three different grades could be attributed on the evaluation of the policy: grade 0.1 when the policy exists, but is not accessed by the agent; grade 0.5 when the policy exists but has limited action; and grade 1 for the existing policy that has important action for the agent. These grades were given based on the collected subsidies from a field research conducted in July 2016, in which companies (farms) with wage workers were visited, so as rural communities of settlements, and non-settlers, and some key actors were interviewed, such as union leaders, business representatives and employees, and workers of farming families.

Therefore, with greater or lesser support of public policy, and having faced favorable and unfavorable situations such as international crises, retraction of the rural credit supply, changes in exchange rates and corporate bankruptcy, the fact is that the global melon chain has had a linear growth trend since the second half of the 1990s, and with the participation of the three forms of organized production and labor, that is, private companies - which account for almost all production; family agriculture, especially in areas of agrarian reform settlements; and the employees. Accepting that much of this growth came from public policy, what exactly were its effects?

The following item searches the first answers for this question based on secondary data and bibliographic and documentary research, and discourse of entrepreneurs and representatives of rural workers and government who participated in the research activities that were carried out so far, as follows: i) round tables organized by survey participants in the global chain of melon, during the XXI Seminar of Applied Social Sciences Center (CCSA), Federal University of Rio Grande do Norte (UFRN); ii) documentaries prepared based on these lectures and recorded interviews with each of these representatives; and, iii) exploratory trips, consisting of visits to companies and family melon production units in the municipalities of Mossoró and Baraúna.

3 PUBLIC POLICY NETWORKS, GLOBAL CHAIN OF MELON AND ITS ECONOMIC AND SOCIAL EFFECTS

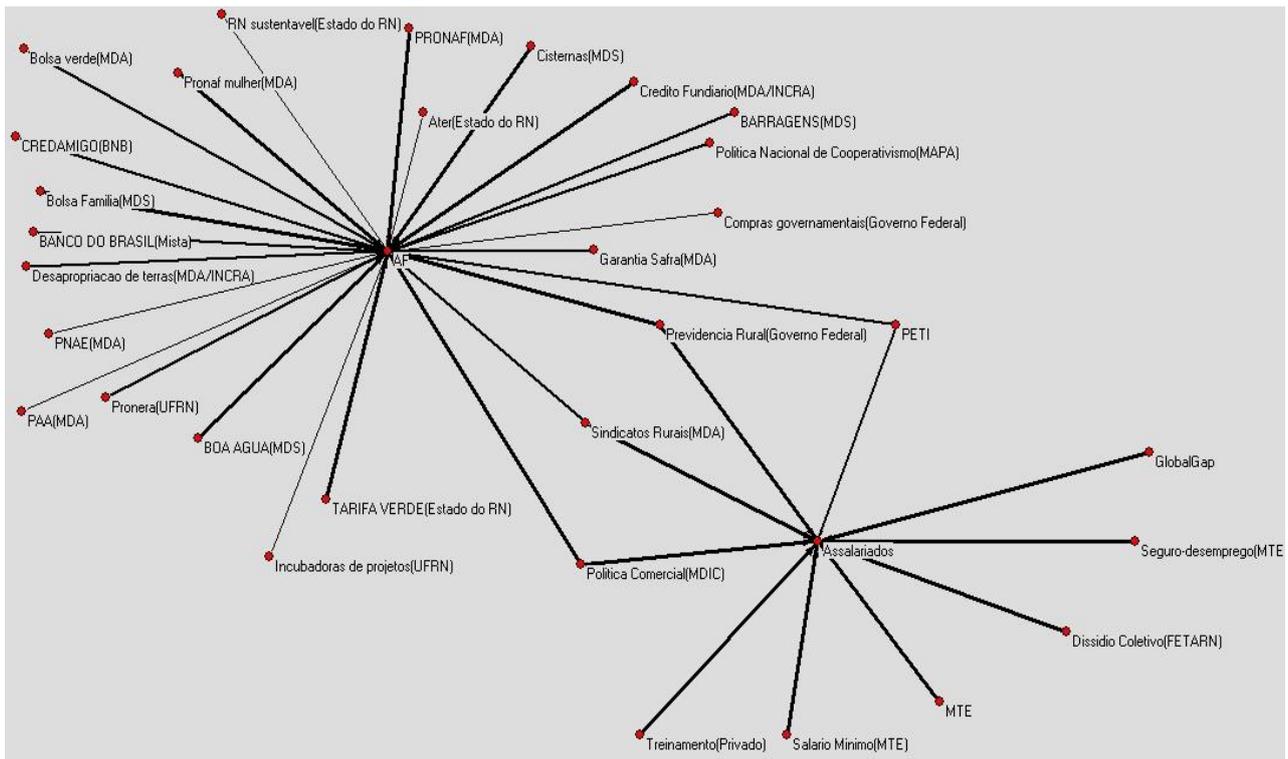
3.1 The network of public policies for melon workers

In this section, we used the methodology of networks to analyze the public policy provision that focus on melon workers in the Polo Açu-Mossoró region. The network was built from table 2, exhibited in the previous section. The employees (identified as "assalariados") and farmers (identified as "AF") were defined as the network nodes. Besides these, the other nodes refer to the policies issued by the various agents (governmental, international, etc.), and the links established between the agents refer to the policies. Thus, they are the directed networks, with assigned grades and according to table 2, shown in the previous section.

The network can be presented graphically, as shown in the figure below, where it's noticeable the clear connections between farming families and employees, in relation to the existing institutional framework. It is observed, immediately, that policies seem to be divided, some being accessed exclusively by a working group (family farm or employee). Only security policies, eradication of child labor (PETI), rural unions and trade policies effectively reach the two groups of workers.

This may be a symptomatic problem of division of interest between these two classes of workers, as this process is already beginning to appear. There has been a growing disagreement within the union, as conflicts of interest arise between employees and farming families. This can be seen during the process of hiring employees by farming families that produce melon. While employees working at companies have a formal contract, such minimal requirement was not identified in the farming families.

Graph 1 - public policies network and Polo Açu-Mossoró workers



Source: prepared

Another important fact shown in the network is the difference in the number of policies for farming families. It is evident that there are two times more policies for the families - exactly 26. As it can be seen, the company employees have access to 13 policies.

However, while treated as a network with grades, number of connections, the access to policies may be relative. That is, adding the fact that its effectiveness and ability to reach the target audience must be observed. Thus, we analyzed not only the number of accessible policies for each employee group, but the grade that each of these political charges, that is, if they are in fact real policies, pseudo policies, symbolic or nonsensical, according to the definition by Gustafsson (1983).

By analyzing the gradings of the connections, it is observed that farming families account for a grade of 14.7, given the quantities of accessed policies and their respective grades. In turn, the employees have a value of 11.6. This fact is interesting, because although the number of policies applied to company employees is half of the number applied to families, the difference between the two with regards to the effectiveness of the policies makes it evident that, while the farmers still have a higher grade, much of the points come from pseudo policies - they exist, but the lack of knowledge about this group prevents the policies from impacting the target audience.

Thus, it is clear that public policies for employees have been more effective, having approached the standards for decent work. However, farmers have at their disposal mechanisms that

can allow them getting on track for improving their working conditions. Although, these seem to be dispersed and poorly linked, making it difficult to be accessed, and leaving these families farther from certain aspects of decent work. An example is the issues related to training and productivity, where farmers are generally unable to access the service policies, which worsens their working conditions. Often, it entails their working hours to be even longer, which sometimes makes them involve their children at work, as seen occasionally during the field research. In the next sections, the consequences of this institutional environment on the aspects of economic performance will be analyzed, as well as how this has effected the trajectory of Polo.

3.2 Global melon chain cycle

Statistical data on the quantity of produced melon from the last 14 years allow us to affirm that the global chain of melon exhibits a growth tendency, but interspersed by cyclical variations. In the case of this temporary fruit culture, of a very short cycle - only two months – it is possible to have two crops a year with drip irrigation system, which is the practice commonly used in the Polo Açu-Mossoró Irrigated area. These numbers can also be higher or lower in short terms, depending on changes in demand, interest rates or exchange.

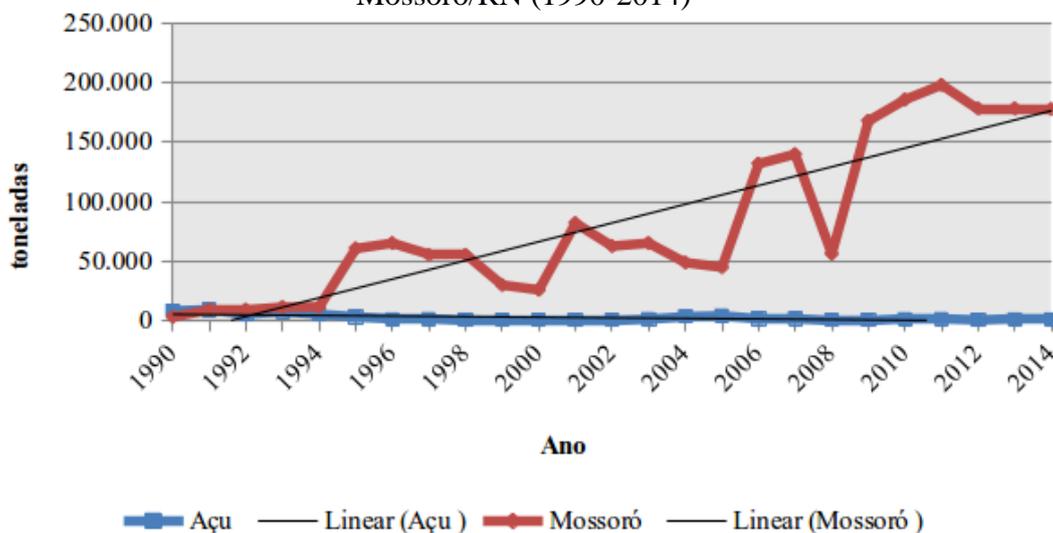
The separation of the quantities produced in each area of Polo, seen in Figure 1 below, provides the first clue: melon production in Açu became stagnated, while production grew in Mossoró, albeit marked by a cyclical behavior. Why did this happen? The answers obtained in the exploratory interviews gave several clues for understanding this behavior, for instance, crises in major importing countries, especially the United States and Europe, the devaluation of the Brazilian currency, the reduction of rural credit and, consequently, company “bankruptcy”, which occurred with more intensity in the Açu Polo.

Actually, the companies’ “bankruptcy” in here should be better labeled because it might mean the process of disabling the crops in Polo Açu-Mossoró, and moving to another state or country to continue the production, when it comes to companies with rural properties in more than one state or more than one country. On the other hand, if the deactivation of the melon production is not properly followed up, it can lead to a process of dispossession, since the land would not be fulfilling its social role, which is the agricultural production and the creation of jobs in decent conditions.

This is what happened with the major producers of melon that faced “bankruptcy” in Polo Açu-Mossoró. After all, the expropriation of social interest in Brazil is not a bad deal, since the land is paid in agrarian debt bonds and improvements are made in cash, all valued at market prices. On the other hand, the municipalities of Açu and Mossoró are also areas of oil production, wind energy

and tourism. Thus, renting the land, being the reason for it geographical or of investment (I and II), allows it to be also used as a store of value, and not only for irrigated agriculture.

Graph 2 - Evolution of the amount of melon produced in the municipalities of Açu/RN and Mossoró/RN (1990-2014)



Source: IBGE - Municipal Agricultural Production. Prepared by the authors.

On the other hand, a research by Bezerra (2013) showed that the average life span of companies in the Polo Açu-Mossoró is of only 12.6 years, and the difficulties faced by them are related to managerial factors and to economic and cyclical causes. It has not been found yet a management model that is able to respond to the complexity of the performance of these business environments. In fact, the literature review and exploratory visits to Polo Açu-Mossoró proved that the great pioneers in the introduction of irrigated fruit growing are the ones accounted for most of the production of tropical fruits – mainly of melon, as MAISA, FRUNORTE and Fazenda São João have gone bankrupt and had their lands expropriated for setting agrarian reform projects.

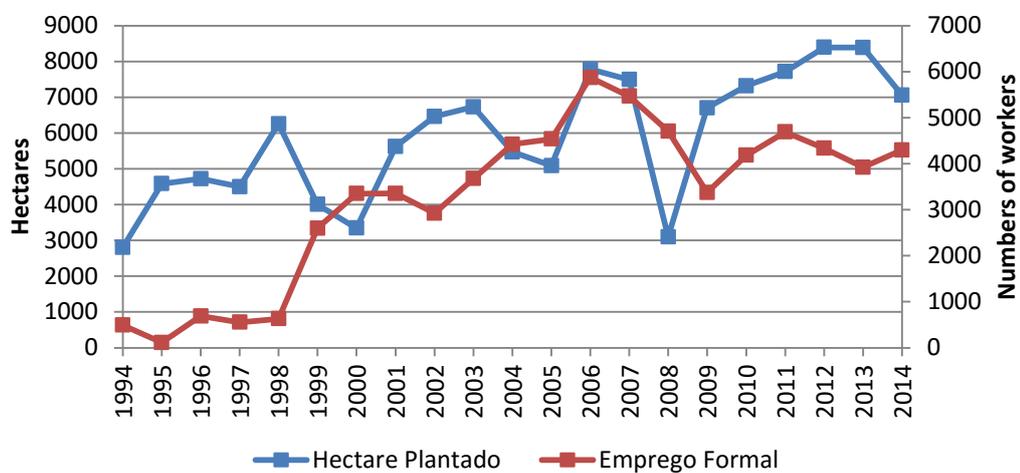
With the disappearance of these companies, there was also the disappearance of partnerships contracts experiences with family farms, particularly in the areas of agrarian reform, as well as the rich experiences of self-employed producers organized in associations and cooperatives that marketed production in domestic and foreign markets. The independent producers of melon that were visited have returned to the old ways of marketing, that is, directly with intermediates, who travel around the melon production areas buying the production of each farmer, and by the eye test, evaluate and come to an agreement with the farmer for determining a value.

This all happens despite the existence of government policies for the acquisition of production of family farms, such as the PAA, the PNAE and Government Procurement. However, producers of melons companies have their own ways of dealing with the difficulties of the

complexities in the global corporate environment, cyclical crises and cyclical changes in economic policies, as shown above.

These changes in the settings of the productive polo organization affected the use of production factors. The chart below shows the numbers in formal employment adopted by melon producers of Polo, and the total cropped area. It is noted that between 1994 and 1998 the number of formal workers remained stable, while the cropped area grew considerably. In this scenario, the hypothesis of the existence of a large number of informal workers emerged - this has been confirmed by the trade union leaders who said that labor rights were not as respected in the early 1990s.

Graph 3 - Total Cropped Area and Formal Employment in Polo Açú-Mossoró (1994-2014)



Source: IBGE - Municipal Agricultural Production. Prepared by the authors.
 Blue line: planted hectare; Red line: formal jobs

Coincidentally, at the end of the 1990s, the number of formal workers significantly increased while the amount of cropped area reduced by almost a half. This period marks the beginning of the instability of the pioneering companies facing the changes in the institutional environment, that is, changes implemented by the Ministry of Labour for enforcing the labor law, and even the ones made in international trading, when the certification of products started being required - and some of the requirements in these certifications precisely addressed working conditions.

The evolution of formal employment also registered growth at the end of the first half of the 2000s, which shows that the productive restructuring occasioned by the bankruptcy of some agents was quickly supplanted by the emergence of new companies. The number of formal jobs only suffered a new falloff in the second half of the 2000s, largely due to the decrease in the industry activity because of the global economic crisis.

Thus, it is clear that the changes in the adoption of formal work started from a new institutional environment set in the late 1990s, with higher performance of the MTE and international organizations. However, this restructuring process that occurs in Polo has virtually no impact on formal work, although some union leaders claim that the total number of jobs have decreased.

3.3 Concentration space of gross production

The spatial concentration in municipalities with greater availability of groundwater resources, as the case of Mossoró and Baraúna, can be explained by technological intensification in areas that are not subject to flood risk and are, therefore, more suitable for the precision agriculture existent in those municipalities - a form of reaction to the difficulties related to the complexity of the global institutional environment and the changes of macroeconomic policies in Brazil. Beside this, we can highlight the use of cooperative organization that brings together small and medium-sized companies that do market research, articulate contracts and leave the market on behalf of each associated company acting individually and not collectively, as expected.

Table 2 below is the first approach to this reality. As it can be seen, the concentration is a feature that opposes the very notion of polarized space, as conceived by the Federal Government from the early 1970s, based on the theories of integrated rural development in Polo. Two municipalities, Mossoró and Baraúna, account for almost all of the gross value of the melon produced in Polo Açu-Mossoró.

The concentration is also observed within each of the municipalities, as the melon production accounts for 88.24% and 11.36% of the gross value of agricultural production in Mossoró and Baraúna, respectively. But if the melon production has a stake that is so important in the formation of gross interval of production, that remains a question, in view of the following theories of the integrated rural development: the acquisition of machinery, inputs and equipments that are made in the more developed regions of Brazil, and not in Polo Açu-Mossoró. So a major part of the expected backwards and forward effects is carried out in the more developed regions of Brazil, and not in Polo Açu-Mossoró.

Table 3 - Share of gross value of production of melon in the gross value of production of the municipalities that make up the Polo Açu-Mossoró in 2014 (R\$ thousand)

County	Gross value of agricultural production (A)	Gross value of agricultural production melon	Percentage(%)
Açu	10.876,00	448,00	0,28
Afonso Bezerra	2.377,00	640,00	0,39

Alto do Rodrigues	15.453,00	-	-
Baraúna	79.932,00	17.879,00	11,09
Carnaubais	6.676,00	-	-
Ipanguaçu	6.676,00	-	-
Itajá	6.676,00	-	-
Mossoró	181.652,00	142.400	88,24
Pendências	657,00	-	-
Serra do Mel	13.264,00	-	-
Upanema	2.860,00	-	-
Total of Açú-Mossoró Complex	338.753,00	161.367	100,00

Source: Instituto Brasileiro de Geografia e Estatística, 2014.

3.4 Private enterprises, reform settlements land and employed work in polo açu-mossoró: some evidence

3.4.1 Private enterprises

The three main forms of organization of production that constituted the subject of the exploratory research that led to this article are: private companies, agrarian reform settlements and employees. These forms of organization, and their current effects, reflect the two agricultural modernization alternatives implemented in Polo Açú-Mossoró in the early 1970s: i) the modernization of large rural property, transforming it into an integrated agro-industrial company, based on formal employment; and ii) the modernization of family farming, based on official settling projects.

Mossoró Agroindustrial LTDA (MAISA), a company that owned a total area of 20,000 hectares, was designed based on the first alternative in the 1970s; the Integrated Rural Development Project of the Villages of Serra do Mel and Carmo (Serra do Mel Project), also in the 1970s, followed by the perimeter of the Lower Açú irrigation – that started in the 1980s, were designed based on the second alternative.

MAISA was a project that had access to credit and abundant tax incentives in the late 1990s, with melon as the main export product. However, with the reduction of rural credit and tax incentives, as well as changes in the valuation of currencies, the accumulation of labor claims and the requirements of international trade in agricultural commodities appeared and contributed for the bankruptcy of the enterprise. The Serra do Mel Project was transformed into municipality by the relentless struggle of its creator, former governor Cortez Pereira, who ensured that it would not be privatized; finally, the Irrigation Perimeter of Low-Açú only had its first stage implemented. Today, it irrigates only 10% of the 22,000 hectares that were designed to be implemented with public irrigation based on modern business and family farming.

Despite the high failure rate of private enterprises, these were the ones that had access to tax and credit incentives, and that better took advantage of the water infrastructure, roads, port and airport, all built with multiple purposes, but that were very well used by exporters of melon. The private companies, individual or organized in cooperatives, had forms of hegemonic organization in the production and export of melons for the United States, Europe, and more recently for MERCOSUR, particularly Argentina. According to Table 3, below, which shows an ongoing survey that aims at retrieving information about the universe of producers of melon in Polo Açú-Mossoró, to this point, there were 125 companies.

Despite the high rate of failure, it can be said that the alternative for modernization of agriculture, meaning the large enterprise based on formal waged employment, is the hegemonic form of organization of production in Polo Açú-Mossoró, reflecting the way that is followed by Brazil as a whole. Despite this point, Polo Açú-Mossoró concentrates most of the agrarian reform settlements of Rio Grande do Norte, and in the settlements live part of the employees of the private companies, as seen in Table 3 and item 3.4.2..

Table 3 - melon-producing companies in the Açú-Mossoró Irrigation Polo distributed according to the total number of: companies created and that went bankrupt by their location, from 1970 to 2015

Municipalities where the companies were located	Total number of companies created		Created companies that went bankrupt	
	Number (a)	%	Number (b)	% of total (b/a)
Mossoró	54	43,2	12	22,2
Baraúna	64	51,2	11	17,1
Others	07	5,6	04	57,1
Total	125	100,0	27	21,6

Source: direct research conducted by Professor Emanuel Márcio Nunes, the University of Rio Grande do Norte.

3.4.2 Agrarian Reform Settlements

According to data provided by the Federation of Agriculture Workers in Rio Grande do Norte, today, in the state, a total of 1,167 settlements exist in an area of about 1 million hectares, in which 26,600 families - or more than 100,000 people - are settled. There is a long accumulated experience of employment between companies and the settlers (or settled workers), among which include: partnership agreements; production contracts; and wage labor contracts.

The partnership agreements were characterized as the re-creation of an old working relationship in modern irrigated agriculture (Silva, 1992), but they ceased to exist; production contracts with the companies were also discontinued. The predominant employment relationship today is the waged work, formally engaged, with guaranteed rights and an annual agreed collective bargaining, represented, on the one hand, by the Federation of Agricultural Workers (FETARN) and on the other, by the Federation of Agriculture of Rio Grande do Norte (FAERN). The information obtained in the exploratory visits confirmed that the families who grow melons in the settlements are actually pluri-active families, whose income stem from agricultural and non-agricultural activities, pensions and employment contracts in companies.

The marketing process is different: for the large enterprise, the melon is produced under contract with price clause, which minimizes the risk. For the individual melon producer, the crop is produced without the guarantee of any written contract. It depends on the price at harvest. For one of the farmers interviewed "the melon production is a game"; "When we want to make money, we grow melon." In fact, all visited farmers who grew melon received public funding, originated from the Program for Family Agriculture Strengthening (PRONAF). The cost of an irrigated hectare is not too high to be borne by a farming family.

All the independent producers that were visited are pluri-active, and were at least retired or beneficiaries of income assistance programs such as Bolsa Família. All of them also receive credit from PRONAF. The living conditions of these pluri-active farmers are far superior to those of the employees, at least in relation to the following housing conditions: brick walls, concrete floor, internal bathroom, at least 3 rooms, balcony, tank and tube well.

From the point of view of the cooperative organization, it was found that there is a number of associates in a cooperative (COOPYFRUITAS) that functions as a "holding" association, and not necessarily as a cooperative. It has a staff of specialists, bilingual, apparently well-paid, representing the companies in the joints with international buyers, and, in second plan, with domestic buyers.

4 FINAL REMARKS

This study aimed at analyzing public policies that influence farming families and rural workers employed in the production of melon in Polo Açú-Mossoró, given the forms of organization of production. In the region, the production of melon is consolidated and based on the following production methods: of varied-size businesses (large, medium and small) and family farms, which are presented to be multifaceted, in settlements, pluri-active, not settlers.

In this scenario, it is observed that in the 1990s, set of policies emerged, seeking to contemplate these producers decently. In accordance with this melon production, Polo Açu-Mossoró cemented an important culture and international industrial importance, while showing a linear growth behavior that was also unstable, depending on the circumstances, particularly in regard to the demand, the international market behavior, exchange rates and the requirements of international organizations for standardized working conditions and the certification of products marketed internationally, which affect prices and domestic policies.

By observing this framework of existing policies, it is clear in some perspectives that there was a major effort in the creation of policies that sought to improve the working condition of rural workers - many of them inserted in ways that correspond to the concepts of decent work. However, although the farmers have had major policies working in their favor, the policies for the regular employees are more effective because many of the policies for the farmers are not accessed by melon producers in the analyzed region. This fact points to an important issue, because despite the creation of several policies, these seem to be dissociated from each other, which reduces its scope.

Nevertheless, the trajectory of Polo Açu/Mossoró is unstable, regarding internal structure; it was observed, over the past two decades, the disappearance and emergence of new agents, mainly due to changes in the institutional environment, with national and international changes. But this fact does not seem to have greatly affected the dynamics of Polo. It was observed that, as the number of formal workers grew, these changes actually enabled this very expansion of this type of occupation, which indicates an improvement in employee working conditions.

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