Perception of Concepts for Natural and Artificial Environment on Coffee Culture around Nova Mamoré City, State of Rondônia, Brazil

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***Abstract* —** This study addresses the relation between the natural and artificial environment's concepts, interpreting sustainability in the coffee culture around Nova Mamoré City. Following intersections among geoagricola plant and impact on the natural and artificial environment, the study is based on the contingency theory that emphasizes the environment and its influence on organizational behavior, involving technology such as the cultivars. The Theory of Economic Development proposed by Schumpeter and the Theory of Ecodevelopment supplement the understanding of the environment studied, allowing the identification with respect to the culture of living, the reality in your space, your learning and the typical characteristics of the ecoregions. We adopted the method of content analysis, focusing cognitive procedures in publications related to the cultivation of coffee. The result is a priori given the complexity involving causalities and subjugated to the public policy of agribusiness facts. This study is offered to somehow involved in the environmental relationship.

***Keywords* —** Atmosphere, Coffee Culture, Ecodevelopment, Geoagricola.

I. Introduction

THE material presented here aims at instigating a more detailed search for questions that may pervade the environment. To be able to understand what will be the environment, aiming to elucidate the authors. The environment to which we are embedded is divided into two fields such as the natural and artificial environment. The natural environment refers to the space unchanged or untouched by humans, and the artificial environment presents adaptive, reveals human occupation and extent of their activities such as agriculture and livestock. There is literature showing other typifications, conceptualizing the artificial environment as related to the work, digital or even cultural environment.

The volume of interactions that occur within an artificial environment is within a limit of saturation, causing or allowing some kind of behavior or disorder that often results in the most diverse diseases.

II. Intention

The overall goal is to study the proposed environment for the coffee production. To accomplish this, specific objectives are proposed dealing with the major theoretical concepts of Artificial and Natural Environment (1) characterize the production of coffee in the City of Nova Mamoré, (2) and subsidize a geoagricola plant capable of setting the best relationship between the natural environment and the artificial cultivation of coffee, (3) The question to be answered is how to characterize the relation of coffee production in the Nova Mamoré?

III. Theoretical and Conceptual Review

Agricultural production needs proper treatment in Brazil, as efficient plants and production models in agribusiness demand of organizational concepts, and environmental discussed in Chiavenato [3]. According to him, the productive systems should find ecological niche in which it can compete, he presents emphasizing the environment and how to influence organizational behavior and technology, as evidenced by the impact on organizational characteristics.

The Theory of Economic Development Schumpeter exposes transversality in implication between innovation and creative destruction. Let's understand the relationship and demonstrate the traditional production model, the example of coffee farming in Nova Mamoré. New techniques applying for planting and suitability for geoagricola plan to operationalize the production model required in organic coffee plantations, the destruction arises from the traditional model.

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It is somewhat complex way to conceptualize ecological development as stated by Sachs himself [15], but in short it is a new look launched for the development of artificial environment, with more specific targeting for rural areas, but not prevents possible to apply in urban areas, as both urban and rural areas is an artificial environment, built or modified by humans.

As the eco-development will transform or innovate the rural artificial environment, first you must identify and respect the ecoregions in which is entered the model and object of study, since each anchored in this ecoregion basics of satisfying the needs of that there belong. And the eco-development is fundamental good of the human being as described Sachs [15]. The suffocation of biodiversity due to large areas of monoculture together with the intensive use of pesticides cause is called as a phenomenon known as green desert that presents unparalleled environmental impacts. Therefore, it is necessary to develop new models that can meet the new demands and is consistent with a less aggressive environmental production process.

When associated with the cultivation of another crop coffee, occurs immediately eliminates the monoculture model, so the pests resulting from this model are already passives disposal and effective control implemented as organic farming, pest control (wildlife) through appropriate biological control. The distribution of plots planted in the format area also allows for productive restructuring in batches, facilitating management according to the states EMBRAPA Agrobiologia [7].

In Table-1 the coffee production matrix is demonstrated by considering the main direct relationship between the traditional model and model organic farming point.

TABLE I
COFFEE PRODUCTION MATRIX

Procedures	Traditional coffee	Organic coffee
Plantation	Planting following the contour. Seedlings containing high genetic pattern and appropriate plant control.	Selected per plot, planted with 25 units per plot, divided into four lots (north, south, east and west). Seedlings containing high genetic pattern and appropriate plant control.
Pruning	no	Pruning - for increased production. Receipt - for renewing season.
Fertilization	Heavy chemicals - mineral, chemical foliar	Humus, green roof, bio-fertilizer, manure composting.
Pest control	Physical control of the weeding mowing. Chemical control of application of pesticides and fungicides Heavy chemicals - fungicides	Use of green roof allowing the replenishment of soil nutrients. Organic associated plant use that allows a runner biological control. Biological control with wildlife using the wasp-coast-of-the-ivory, red mite among others.
Harvest	Harvest begins with at least 1/5 of green fruits. Direct. Derriças soil, employing rastelamento for separation of the fruits of the soil cover and later using the system fan for removal of foreign bodies.	Starts removing selective harvest only the ripe fruit or general collection and subsequent separation of the mature green fruits or dry wet by selecting and bagging system separately. Derriças on canvas to avoid damaging the green cover (fertilization).

Source: Prepared by the author based on EMBRAPA.

IV. METHODOLOGY

This is a qualitative study and descriptive approach, the construction process of this work stems from the documentary references. Considers Godoy [10], the documentary research is coated with an innovative character, so this task was prepared by the literature search support method and instrumented with the procedures of content analysis method.

Among various existing methods, such as ethnography, case study, content analysis, discourse analysis, among others. One of the peculiarities of each model was adopted the method of content analysis as the best that would fit a function of time and the dynamic development of the study.

V. RESULTS

Humanity as a whole is an integral part of the environment, importing is not getting through natural or artificial environment, but what becomes paramount is that we can be sensitive to the evils that are causing some cases of agony.

In this compendium presents an analysis taking as reference the Schumpeterian theory in the aspect of innovation, considering that innovation will not propose radical changes over the production model rather adequacy of coffee culture taking advantage of this innovation proposed by the organic production model.

The Federal Constitution of 1988 protects the Media Environments: Natural, Artificial, Cultural and Labour. Thus it is necessary to classify more clearly Environment for easy identification, logo, Fiorillo [9] has the following classifications; natural environment consists of the land, water, air, the flora and fauna, focuses on phenomena homeostasis, comprising the balance between human beings and the environment in which they live further defines artificial environment being altered by natural space bounded constructions like buildings, or enclosed urban spaces and public facilities, urban open spaces.

All these changes brought about in search of more space for developing artificial environment to the detriment of the natural environment.

The manner in which the coffee is grown is characterized as artificial medium, as shown Dias [5], the large-scale production based on taking traditional coffee cultivar causes numerous environmental impacts due monoculture providing the spread of pests and therefore reduced production thus begins a vicious and continuous, process for the reduction of pests is necessary to apply chemical pesticides to heavy pest eradication, but the use of such compounds most often cause unprecedented impact on micro-wildlife and flora thus eliminating possible natural pest control agents, thus continuing the practice of monoculture leads again to restart the cycle of proliferation of pests.

Even deploying the techniques of organic coffee production in culture, does not cause radical change in the environment occurs only an adaptation of the natural environment in which caffeine is deployed, however the less aggressive towards the environment as a whole, say, the organic model presents a significant concern with the ground, with the micro-wildlife

and flora when disallows the use of pesticides and heavy array of inorganic chemistry, encourages the use of natural agents as biological pest controls, allowing a less aggressive production to environment artificial and natural due to non-application of heavy chemical fertilizers or inorganic non-use of pesticides provides that the soil is not contaminated and therefore no contamination of groundwater, ensuring that one of the environmental goods and services production and purification water is not impaired as argued Whately.

Brazil is one of the three largest producers of coffee in the world, currently 27-30% of the world coffee market belongs to the Brazilian trade balance. Currently the search for new market niches and new coffee products in this growth, we highlight what is pointed to by EMBRAPA Agrobiologia [7], the most demanding consumer seeking new flavors new production methods.

The growth rate of the Brazilian organic coffee export market is advancing steps of 100% per year (Caixeta and Pedini, apoud EMBRAPA Agrobiologia [7]), this new marketing model meets a standard of superior quality and also the premises of environmental sustainability.

Using the knowledge of the biome and ecology in the proper management of the crop permits substitution of chemical inputs for organic inputs, ensuring better utilization of all natural resources and preservation of the ecosystem, contributing to human dignity in their quality of life. Organic agriculture is based on the proper use of natural resources and the conscious use of environmental services.

The Figure-1 shows the location of the city of Nova Mamoré, the origin of the city, occurs in 1968 with the construction of the BR-425 passing 4 km from Vila Murtinho an existing populated due to the train station which was shut down along with the Madeira-Mamore, to not be isolated population began to occupy the spaces near the banks of the new highway, this time the cluster was called Vila Nova Mamore belonging to the perimeter of the city of Guajará-Mirim in 1988 passes the quality of the municipality.

With the enactment of State Law N°. 202 of June 15, 1988,and State Law N°. 207 of July 6, 1988, on December 17, 1993, amended the Municipal toponymic to Nova Mamoré.

Fig. 1 The location of the city of Nova Mamoré, Estado de Rondônia Brazil.

Source: adapted by the author on Wikipedia.

Territorial part of the city is composed of ten Settlement Projects, described in the sequel: PA Igarapé das Araras; PA Ivo Inácio; PA RosanaLecy; PA Pau Brasil; PA Marechal Rondon; PA Esmisina Pinho; PA Ribeirão; PA Igarapé Azul; PA Francisco João; PA FlorianoMagno e o ProjetoIntegrado de Colonização Sidney Girão, still exist in the spatial composition of a follow State Park Guajará–Mirim, reservations and three Indigenous Lands, TI Igarapé Ribeirão; TI Karipunas; e TI Igarapé Lage.

With the creation of Complementary Law N°. 233 of 06/06/2000 objects whose agenda the establishment of Socioeconomic-Ecological Zoning of the State of Rondônia, the Law redrew the state of Rondônia in various clippings, classifying them as areas and subzones. Under the law in question complied with the divisions socioeconomic profiles of each sector, before this new model the municipality is framed in the following subareas (Subareas ZSEE-RO 1.2, 1.3, 3.1, 3.2, 3.3), which are described below for better understanding of the presented model.

For subarea: 1.2 regions have accelerated occupation, expands from its urban area, subarea 1.3-low population density where maintenance of natural resources is the best way; subareas 3.1- Sustainable Use, and Subarea 3.2-full Protection. This categorization of the territory of New Mamore allows its exploitation within the environmental context.

During the decades from 1970 to 1980 while the city was still district Guajará-Mirim received the Settlement and Integration Projects-PIC developed by INCRA. Therefore, the geographical territory of the municipality corresponds to approximately 50 % occupied by the PIC model. At the height of implantation of settlements of the municipality Guajará-Mirim (IATA District, District of Vila Nova and District of Surpresa) was considered the granary of Rondônia, and now this scenario has changed drastically noting that the agricultural, livestock and fish farming have changed expanding direction along the BR-364, gradually moving away from the axis of the BR-425.

The municipality of Nova Mamore was once the largest producer of traditional coffee in the 1970s and 1980s, the steady decline in the last thirty years of producing areas under the fall in coffee prices across the global market and rising prices of inputs (fertilizers and pesticides) and financial attractiveness that other activities such as animal husbandry and piece culture have provided.

The developed model is still treated as traditional cultivation, where it has a system of density (distance between seedlings) considering the model contour to retain precipitation and removal of weeds by spraying and weeding.

The Coffee Plant Geoagricola the city of Nova Mamoré is located in an area that the major product arises from the dairy industry, but regardless of this catalyst format that requires the dairy production process with presence of agro-industries for the processing of milk, the same is not true with the coffee culture.

The structuring of plant Geoagricola is through a combination of some elements of control and enforcement procedures allowing the construction of a model to support the process of decision making from producer. Among the most

significant elements for plant Geoagricola we consider the following units: procedural control (inventory) of production, productivity, associated or intercropped crop, soil, pests, and diseases.

It is essential that the mapping of the entire production treadmill is properly identified and integrated through software (apps, spreadsheet, database, etc.), which can generate reports or maps controls. Any suggestions for control models listed above must reach the proposed model for modern agriculture, more specifically anchored in the principles of agribusiness paradigm in which the coffee production is inserted goal.

As described by Sachs [15], about the land-ecology, rural-roominess entire plant will be inserted into a reality of one or several ecoregion and respecting all the elements that compose to construct a harmonic production model with the environment and co-participant-environmental responsible. The elements brought to the screen should respond to innovative management innovation is technology allowing the producer subsidies in decision making.

The coffee culture developed in Nova Mamoré, this established family farming, and traditional production model. The use of mineral fertilizers, pesticides and other chemical inputs to ensure the production of coffee is still the current model in the region.

This new model of agricultural production is beginning to replace the monoculture production by rotational and intercropped system thus providing better control of pests and the use of substrates for green manure composition.

As the process of changing the geoagricola plant also depends on the change of producer behavior, primarily the replacement of chemical fertilizer by organic fertilizer, property division in blocks (plots) respecting relief to minimize erosion and ensure better planning resources to be used as organic inputs and labor.

In the meantime, we can observe the current geoagricola plant in the municipality Nova Mamoré, containing the traditional model of planting and production of coffee, the type of planting occurs in the form of lines not considering the importance of soil for the production of coffee has curves conditioning levels to the terrain undulations light as a tool for Retention of rain burden and minimizing erosion and also allowing nutrients remain. The type of soil has low fertility, making it essential to control plant and soil management and the proper spacing for the density of the culture.

The specimen variant *Robusta* coffee is grown, scientifically known as *coffeacanephora*, are plants that have adapted well to the climate and altitude, having a huge range of the most common resistances, but even so, it becomes necessary disease control pests by the use of pesticides, fungicides.

Necessary for the implementation of organic or special model adjustments, based on the environmental concept, is first of utmost importance that a topographical survey is carried out to identify all soil characteristics allow their use within the limits and thereby subsidize the construction of geoagricola new plant coffee.

The distribution of the dense crop stands and adjusted by the topography, considering the implementation of the association of other cultivars. Where there demonstrates the successful experiences in the use of banana, cacao, papaya, legumes according to studies EMBRAPA Agrobiologia [7].

This new model requires a change of producer behavior and their awareness of the process of production and preparation of a plan of conversion respecting international standards of organic production of Organic Agriculture Movements International-IFOAM.

VI. Conclusion

The rethinking of the production process includes adjustments in harvest system and management of the coffee culture is essential, however, are significant as results points EMBRAPA Agrobiologia [7].

There is a need to rethink as a result of the production process which includes adaptations of harvesting and handling of coffee culture system. Targeting the public policy arm of agribusiness in the coffee industry and the scientific pole is a suggestion.

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