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PUBLIC POLICIES OF GUARANTEE FOR MINIMUM PRICES ON PRODUCTS OF SOCIOBIODIVERSITY (PGPMBIO): COMPOSITION OF THE EXTRACTION COST OF AMAZONIAN CHESTNUT IN RONDÔNIA AND ACRE

POLÍTICAS PÚBLICAS DE GARANTIA DE PREÇOS MÍNIMOS PARA PRODUTOS DA SOCIOBIODIVERSIDADE (PGPMBIO): COMPOSIÇÃO DO CUSTO DE EXTRAÇÃO DE CASTANHA DA AMAZÔNIA EM RONDÔNIA E ACRE

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ABSTRACT

Objective: To analyze the Minimum Price Guarantee Policy for Sociobiodiversity Products - PGPMBio with focus on the composition of the extraction cost of the Brazil nut in the states of Rondônia and Acre.
Materials and Methods: This work used a qualitative approach through a field study. The Matrix proposed by Easton (1957) enabled an analysis of Public Policy. The field research took place at three different times, with 34 respondents: the first was in Brasiléia -AC) Acre State) in November 2014, in Porto Velho - RO (Rondônia State) in March 2015, in Brasiléia - AC and Cobija - Bolivia in June 2015.
Results: It was concluded that there is a discrepancy between the minimum price defined in PGPMBio and the price paid by the market in the cases studied. The results show that PGPMBio does not consider environmental costs in the elaboration of the minimum price, employing economic criteria in a context that requires a sustainable vision.
Study limitations: The size of the extractivist sample, which, due to its small quantity, makes it impossible to expand the results for the entire population, being limited to the reality of the interviewees.
Practical implications: It is suggested to include bonuses for environmental services in the calculation of the minimum price.
Originality: The recognition of the workforce on the extractivism of the Chestnut-of-the-Amazon in the composition of the product's cost. This was possible due to the analysis of production costs of the Chestnut-of-the-Amazon through the methodology of analysis of public policies of Easton (1957) and the simultaneous verification of the applicability of PGPMBio among the extractivists.

Keywords : Public policies. Amazonian chestnut. Environmental costs. Environmental bonus.

RESUMO

Objetivo: analisar a Política de Garantia de Preços Mínimos para os Produtos da Sociobiodiversidade - PGPMBio com um olhar para a composição do custo de extração da Castanha-da-amazônia nos Estados de Rondônia e Acre.
Materiais e Métodos: utilizou-se da abordagem qualitativa por meio de um estudo de campo. A Matriz proposta por Easton (1957) possibilitou a análise da Política Pública. A pesquisa de campo ocorreu em três momentos distintos, com 34 entrevistados: o primeiro foi em Brasiléia - AC em novembro de 2014, em Porto Velho – RO em março de 2015 e por fim em Porto Velho-RO, em Brasiléia - AC e Cobija – Bolívia em junho de 2015.
Resultados: Concluiu-se que há uma discrepância entre o preço mínimo definido na PGPMBio e o preço pago pelo mercado para os casos estudados. Os resultados apontam que a PGPMBio não considera custos ambientais na elaboração do preço mínimo, empregando critérios econômicos em um contexto que exige visão sustentável.
Limitações do estudo: tamanho da amostra de extrativista que, por se apresentar em uma quantidade reduzida impossibilita a expansão dos resultados para toda a população, ficando limitada à realidade dos indivíduos entrevistados.
Implicações práticas: Sugere-se a inclusão de bonificações por serviços ambientais no cálculo do preço mínimo.
Originalidade: o reconhecimento da força de trabalho do extrativista da Castanha-da-amazônia na composição do custo do produto. Isso foi possível devido à análise de custos de produção da Castanha-da-amazônia por meio da metodologia de análise de políticas públicas de Easton (1957) e a simultânea verificação da aplicabilidade da PGPMBio entre os extrativistas.

Palavras-chave: Políticas públicas. Castanha-da-amazônia. Custos ambientais. Bonificação ambiental.

1 INTRODUCTION

Over the past few decades, an increasing number of institutions, governmental and non-governmental organizations (NGOs) and the private sector have become involved in the promotion of non-timber forest products (NTFPs). The socioeconomic importance of this type of production was accepted as an assumption, as well as its effects on the environment. However, little progress has been made to clarify the terminology.

On the contrary, new and practically interchangeable terms have emerged, such as forest by- products, smaller forest products, non-wood forest products (FAO, 1999). The concept of NTFPs is presented in Costa (2009), by FAO (1999) and Paes-de-Souza *et al.* (2014) as natural resources, with the exception of wood, obtained from the ecosystem and extracted for subsistence, sale and cultural or religious significance. FAO (1999) corroborates this concept, exemplifying with parts of plants, roots, fungi, leaves, barks, branches, trunks, hunting and fishing.

The NTFP are combined with ambient sustainability by Pedrozo *et al.* (2011), Silva-Jean *et al.* (2020). Hundreds of families survive from the extraction of these products, as is the case of extractivists and agroextractivists who collect the Brazil nut to obtain the income they need for survival. Considering, then, the role that extraction has for these families and for environmental sustainability, the extraction costs of the Brazil nut become an object of study in an attempt to identify the price of this product and collaborate for the improvement of public policies.

According to data from the Brazilian Institute of Geography and Statistics - IBGE (2018), the Brazil nut contributed, in 2017, with R$ 104,147,000.00 to the composition of the Brazilian GDP (Gross Domestic Product), with an estimated production of 26,191 tons.

Paes-de-Souza *et al.* (2011) highlights that a large part of non-wood forest products (NT-

FPs) produced in the Amazon are collected by extractivists. The term extractivist designates groups that are culturally differentiated and that use natural resources, such as NTFPs, for their cultural and economic survival and whose knowledge is transmitted through tradition (SILVA-JEAN *et al.,* 2016).

The Brazil nut is one of the NTFPs collected by Amazonian extractivists. Souza Filho *et al.* (2011) studied the Chestnut-of-Amazon (Brazil nut) in the nort of the region and identified that the production in the state of Rondônia is still incipient, requiring public policies to consolidate its management.

Among the existing public policies to support extractive communities, the so-called Bolsa Verde (Green Exchange) program can be highlighted, it was a cash transfer policy that destined plots of money to the population that survived in the forests, producing NTFPs such as Brazil nut (SILVA-JEAN *et al.,* 2017). According to Laswel (1958), 'public policies' is a set of interrelated decisions in which the way which it is intended to act must be present so that the result of the policy is positive for the citizen. In the case of the Bolsa Verde program, the recipients are the extractive communities that live off the production of NTFPs.

The decision is part of the definition of public policies that is more related to action or inaction: who gets what, when and how. Lindbom (1959) states that in this process of acting to decide, public managers do not have the possibility of formulating a public policy that is complete in all aspects, considering the rational human characteristic as extremely limited. For this reason, it is often necessary to adopt a series of incremental changes.

In 2009, Brazil began to encourage a sustainable development model through guarantees of minimum prices for products from socio - biodiversity (extractive production). This occurs with the attribution to the National Supply Company (CONAB) of setting minimum prices, also for agro-extractive products. The fixing of minimum prices is a national policy that privileges agricultural production since 1943. The incentive to the production of socio-biodiversity stimulated the fixing of minimum prices to NTFPs as well.

This policy was called the Minimum Price Guarantee Policy for Sociobiodiversity Products (PGPMBio). In research at scientific databases such as the *scielo* platform, it is noticed that the scientific publications that discuss the mentioned policy are still scarce, demonstrating that the studies that generate knowledge about the criteria established by the policy of minimum prices to socio-biodiversity present, in numerical terms, little representativeness. This article contributes to the improvement of studies on this theme. The research is also justified for being inserted in regions far from the great Brazilian centers, in other words, in the states of Acre and Rondônia, both in the Northern region of Brazil, territories in need of research and study.

Due to the aforementioned *gaps* , the present study becomes relevant for contributing to the enrichment of the state of the art of the subject addressed, by conducting a reflection in order to answer the following question: how does the Minimum Price Guarantee Policy for Products of Socio-biodiversity - PGPMBio is operationalized, regarding to the composition of the extraction cost of the Brazil nut in the states of Rondônia and Acre?

The PGPMBio is an offshoot of the minimum price guarantee policy for agricultural products. The pricing models cannot, therefore, be the same in view of the different realities verified in the context of forest products compared to the agricultural environment. Martins (2008) mentions that any and all pricing methodology should consider variable costs and expenses, in addition to a contribution margin to cover fixed costs and expenses.

This research aims to analyze the Public Policy PGPMBio with a look at the composition of the extraction cost of the Brazil nut in the states of Rondônia and Acre. The research is structured, in addition to this Introduction, in: i) Theoretical framework, presenting the concepts of costs and prices, according to accounting literature; and public policies from the perspective of Easton

(1957), Lindbom (1959) and Dagnino (2013); ii) Methodology, describing the public policy analysis matrix, as well as the study's approach; iii) Results and discussions; iv) Conclusions; and v) References.

2 THEORETICAL FRAMEWORK

The term production costs is defined by Martins (2008) as the expenses that are indispensable to the production process. When this definition is associated with the term agroforestry, there is an opening to discuss the extraction of Non-Timber Forest Products (NTFP) from the perspective of production costs. This item addresses the issues: public policies and production costs, as well as sales prices.

2.1 CONCEPTS OF COSTS AND PRICES

The definition of expenses is presented in Dubois, Kulpa and Souza (2006) as the acquisition of a good or service that generates a disbursement to the company. For the authors, the expenses can be classified basically in: cost, expense and investment. Cost is defined as an expense incurred for the manufacture of the product, contributing to the transformation of the raw material into goods and services.

According to Martins (2008), investment refers to the acquisition of goods to be available to the organization and not being acquired for resale. This feature guarantees investment in the registration of the company's assets. Ribeiro (2014) defines expenses as important for the production process, but not closely linked to it.

The study of production costs can cover the different approaches to this expense, such as fixed and variable costs, and more recently, the hidden costs conceptualized by Acosta and González (2014) as the dysfunctions arising from the interaction between the structures of organizations and employees by human behaviors. Hidden costs are called this because they are not evidenced by traditional accounting systems and do not have elements of visible costs. The consequence is that these so-called hidden costs are not taken into account when making organizational decisions.

Fixed costs, in the view of Martins (2008), receive this treatment depending on the volume of production in a unit of time. Fixed costs are those that persist even if there is no production, that is, they tend to remain constant in their total even if there are variations in production (DIAS, 1967). In case the inexistence of production implies the immediate inexistence of the cost under analysis, there is a variable cost. Fixed costs therefore exist even if production is equivalent to zero, whereas variable costs are extinguished if production is extinguished.

Florentino (1984) and Horngren (1986) cite rent for purposes of exemplification. Suppose that in a given month the rent costs x, for y volume of production. If, in the subsequent month, production rises to y + 1, the rent must remain at x, unless it needs to be adjusted by some index, but the production of y + 1 does not impact the rent value. That is why the cost of paying the rent is considered fixed. Shank (1997) claims that the companies that manufacture multiple products on common accurate knowledge of each product cost facilities is relevant for determining the selling price of the same . The selling price needs to forecast all costs generated in the production system, including hidden costs.

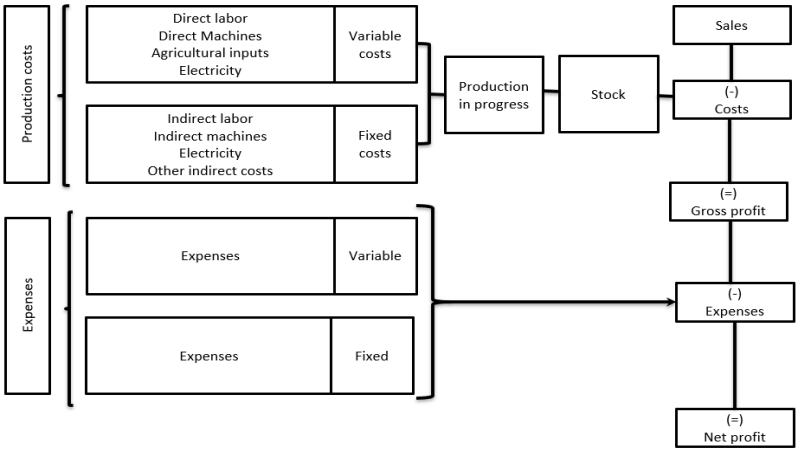
The 'common sense' is pointed out by Martins (2008) when claiming that the selling prices must include costs, but without losing sight of the competition, since the competitiveness in the markets is considerable . Thus, the price of the product must be guided by the market and simultaneously by the costs incurred in the production process. The composition of costs becomes the

initial stage in the process of forming sales prices. According to Santos and Marion (1996) in order to identify costs, it is necessary to establish costing systems, that is, a set of procedures that systematize and continuously record the production expenses incurred. The implementation of such systems guides public agencies to develop public policies, such as guaranteeing minimum prices and encouraging the production of a certain product (SANTOS AND MARION, 1996).

Costing systems are primarily classified as: variable costing, absorption costing, ABC costing and so on. According to Horngren (1986) variable costing system considers only the variable expenses, disregarding costs and fixed expenses for purposes of measuring the expenditures related to the products. Shank (1997) argues that the main advantage of the variable system is the generation of a contribution margin for all products.

This contribution margin, in the sense of Martins (2008), is the contribution of each product to cover fixed costs and expenses. The contribution margin is calculated by subtracting from the sale price, the variable costs and expenses (SANTOS, 2017). Figure 1 contains one of the flows by which costs are considered in the absorption costing system.

Figure 1. Flow of the absorption costing method



Source: elaborated from Santos (1995).

On the other hand, in the absorption costing system, all costs are attributed to products, regardless of whether they are fixed or variable. Santos (2017) asserts that the primary limitation of this system is the need to establish subjective criteria for the division of the indirect part of fixed costs. It is evident to observe that costs are attributed based on the measurement value of inventories, which, in turn, are evaluated based on the sum of fixed and variable costs. This treatment given to fixed costs is what differentiates the concept of the variable costing system from the absorption costing system. Finally, the activity costing system - ABC, is presented in Florentino (1994) that conceptualizes it as the system that focus direct at production activities and not at products. The cost generators in the ABC system are the actions, whereas the product is translated only in the consequence of these.

Organizations define production costs by observing some of these costing systems. Based on the composition of costs, companies can define the selling prices of their products. Wernke *et al.* (2013) defines price as the result of production costs plus a given percentage as a reward for owners of the capital. This profit margin is named by Florentino (1994), Martins (2008), Santos (2017) as a *mark-up* , conceptualized as an index applied to cost to obtain the selling price.

Dumarchey (1939) argues that the selling price has the utility of the product as a dependent variable, that is, in addition to the visible production costs, it is still necessary to consider whether the good to be produced is useful, since it influences the definition of the selling price. The author asserts that work, alongside utility, represents the most appropriate measure of value for an asset.

The costing systems next to the sale price are important measures for the definition of public policies aimed at stimulating the production of a given product. In other words, if the market fails to remunerate the factors of production, it may be that this requires action by the State in the context of the political system that can support the productive system. This is irrefutable evidence of the interrelationship between different systems for the generation of public policies.

2.2 PUBLIC POLICIES

This topic presents theoretical approaches and examples of policies that corroborate Lindbom's (1959) statement. It is demonstrated, based on empirical references, that the Minimum Price Guarantee Policy has undergone an adaptation generating the Minimum Price Guarantee Policy for Sociobiodiversity Products.

The term 'public policies', according to Dagnino (2013), refers to a web of decisions; because it results from a set of interrelated decisions, proposing the selection of goals and forms to achieve certain demands and objectives, considering a specific situation. For Easton (1957) a policy is more associated with action or inaction than with decisions, and says that the term politics does not refer to a decision-making process, but, above all, to the product of this process.

Regarding the definition of public policies, Souza (2006) contributes with the following definition:

> [...] public policies, even minimalist ones, guide our look at the *locus* where the clashes over interests , preferences and ideas are developed, that is, governments. Despite opting for different approaches, the definitions of public policies generally assume a holistic view of the theme, a perspective that the whole is more important than the sum of the parts and that individuals, institutions, interactions, ideology and interests count, even though there are differences on the relative importance of these factors (SOUZA, 2006, p. 26).

For Dagnino (2013) the term politics is used to designate, citing as an example: (1) government involvement , (2) desired objective (economic stability), (3) specific purpose that is usually accompanied by others, (4) results , (5) theory or model that seeks to explain the relationship between actions and results.

As for the formulation of public policies, Lindbom (1959) treats it as an arduous process, saying that policy planners do not know the social world well enough to avoid errors in the decisions made. He asserts that "It is therefore wise for policy makers to admit that their political decisions achieve only part of what they want, and that these decisions, at the same time, produce unforeseen and even unwanted consequences " (LINDBOM, 1959, p. 175). Thus, it is often necessary to adopt a succession of incremental changes, so that planners avoid serious mistakes with lasting consequences.

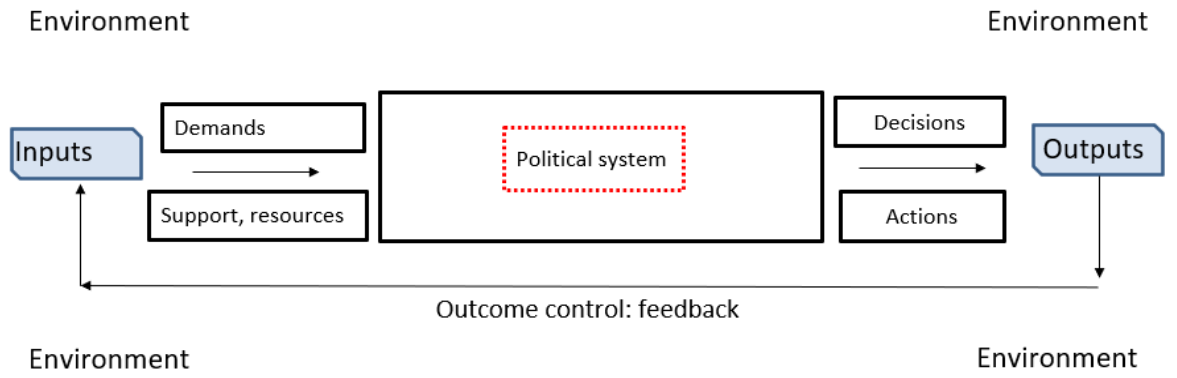
The study of the environment with the intention of making a situational diagnosis is approached by Dagnino (2013) as a tool in the sense of basing correct political solutions, especially if considering the breadth of reality. The more real the situational diagnosis, the less necessary incremental attitudes will be. In this perspective, the term social actor is used when it comes to a person, group or organization that (i) participates in a certain social game, with a project or with the control of a certain relevant resource for the game (ii) has strengths, therefore, it has the ability to produce

facts in the game. Kingdon (1984) presents governmental and non-governmental actors as members of the political decision-making process. Government officials are part of the administration itself (president, members appointed to exercise public commissioned positions). Non-governmental actors are academics, researchers, political parties and citizens. These social actors are whose can accompany the implemented strategy.

Thus, situation and problem are synonymous. Social reality can be understood as a general game integrating several partial games with rules, laws and customs. The governors and those in charge of management are seen as the players who, through their actions, form accumulations during the game, with the intention of changing their result. These accumulations are the causes of the expansion or reduction of its capacity to produce other moves and also to change the initial situation. This is the process by which changes are made in a given problem situation.

The description of a problem is then linked to the social actor who declares it (DAGNINO, 2013). In describing a problem, it is necessary to differentiate the causes (the problem is due to the description (verifies through) and consequences (produces an impact on). According to Easton (1957), political life is an open system subject to these problem situations present in the environment and feeds on *inputs*, with the intention of generating *outputs* represented by decisions and actions. Figure 2 is a representation of this system.

Figure 2 - Representation of political system



Source: adapted from Easton (1957)

Sabourin (2014) argues that the application of this method to political analysis suggests four proposals: (1) there are political interactions in the social system constituting a system of specific political behavior; (2) this political system depends on a physical, biological, social and psychological environment; (3) this behavioral system is open to influences from the environment; (4) it is able to self-regulate, respond to pressures and act in the face of environmental conditions.

The inputs are the inputs in the sense of something that is inserted in the system to nourish it and consist of two basic possibilities: the demands and the resources. Whatever the entries, they occur at the most diverse national and international levels. These demands include the actions of individuals or groups representing any present needs in society. The support deals with the legitimacy given to certain institutions or political actors (RUA and ROMANINI, 2013).

The outputs, in turn, denote the product, the decisions and actions of the political system, generating consequences in society, and must be distinguished from results, as these represent the effects of policies on society. Between the entrances and exits there is the political system in which the routines of the public machine are found. Feedback characterizes cycles capable of interfering with future inputs and are vital to the functioning of the system, since without its existence the actors of the system would act blindly (HAM and HILL, 1993).

Finally , the environment is any condition or circumstance external to the system (DYE, 2008). This understanding admits that in the environmental context there may be other systems mentioned only as the environment of the political system, of which we can mention: the personality system, social systems, cultural system and economic system. These systems influence the political system, which is why they cannot be ignored in the process of analyzing a public policy (NASCIMENTO, LEMOS and MELLO, 2008).

The proposal for a systemic analysis of public policies developed by Easton (1957) is presented by Dagnino (2013) as a possibility to understand current situations in the social environment. Birrer *et al* ., (2014) highlights the importance of participatory governance in policy making, especially when those affected by policies are traditional peoples and communities. Dagnino (2013), when suggesting this systemic possibility, presents the need for analysis processes considering the concepts presented in Easton (1957) as a basis. Based on this assumption, the Minimum Price Guarantee Policy-PGPM can be analyzed in this perspective.

The elements present in the system (inputs, demands, support, decisions, policies and outputs) must be interrelated and balanced so that they respond to requests from the environment, under pain of not being able to support themselves. For this structure to remain, there must be an approval and confirmation from the company.

In the interpretation of Peixoto (2014) based on Dye (2008), policies are developed as a response of a political system to the forces that affect it from the environment through demands and support. These demands take place at the moment when interested agents, in response to real or perceived environmental conditions, take action to influence policy. Support arises when social workers accept the results of the elections, obey the laws, pay their taxes and accept political decisions. In this sense, in order to transform social demands into public policies (*outputs*), the system needs to promote agreements and execute them.

A similar policy occurred to serve families producing NTFPs, regarded as natural resources, with the exception of wood, obtained from the ecosystem and extracted for subsistence, sale and cultural or religious significance (PAES-DE-SOUZA *et al.*, 2014), in that the federal government has extended the scope of the Minimum Price Guarantee Policy to reach products of socio-biodiversity . It is the Minimum Price Guarantee Policy for Socio-biodiversity Products (PGPMBio).

Souza Filho *et al*., (2011) consider that the NTFPs are configured as elements of symbologies for the communities involved, as well as providing sustainable development by maintaining the forest, favoring the implantation of a sustainable productive logic, contrary to the traditional capitalist logic. Which is predominantly based on the increase of economic production and the unlimited use of natural resources. Among these resources is the Chestnut-of-the-Amazon, a product that brings together all these legacies.

According to data from IBGE (2014), it can be seen that in 2013, income originating from socio-biodiversity products was generated, with incidence in the Legal Amazon, equivalent to R$502,864.00 for the composition of the Brazilian gross domestic product. It is noticed that the Brazil nut contributed with 14.33%, being in the second position, with the product Açaí being the first classification, with 81.47% of this value. The Brazil nut generated R $ 72,055,000.00 in income. The numbers reinforce the importance of the chestnut-of-Amazonia for national production.

3 MATERIALS AND METHODS

In this chapter are found the integral parts of the methodology, composed of the typology, definitions as to the approach, objective, designs, area of study, and also the research procedures, such as population and sample, data collection and analysis.

The research used a qualitative approach, since Creswell (2010) argues that in qualitative studies document data can be used abundantly and recommends that the research question assumes a central position. This is an exploratory research , according to Gil (2008), documentary and a field study in compliance with the recommendation of Flick (2009) that suggests a diversification in the sources of data collection. In addition to research on scientific articles and books, the official data from IBGE and CONAB was used to obtain the data for analysis. A semi-structured field interview was also conducted using direct questioning to the extractivists, traders and technicians from the Technical Assistance and Rural Extension Company - EMATER in the states of Acre, Rondônia and Cobija , as shown in table 1.

Table 1. Sample characterization

	List of respondents						
Places	**Extractivists Quant.**	**ID**	**Merchants Quant.**	**ID**	**Technician Quant.**	**ID**	**Total**
Cobija-Bolívia	0	CO	3	CMCO	0	TECO	3
Porto Velho-RO	7	PA	9	CMPO	3	TEPO	19
Extrema	2	PA	3	CMPO	1	TEPO	-
N. Califórnia	3	PA	3	CMPO	1	TEPO	-
Abunã	2	PA	3	CMPO	1	TEPO	-
Brasiléia-AC	6	PO	6	CMBR	0	TEBR	12
Total	**13**	**-**	**18**	**-**	**3**	**-**	**34**

Note: The ID column refers to the abbreviation for Identification, and the respective names were used to refer to the respective interviewees.
Source : research data.

Extractivists were chosen to integrate the research as they form part of the base of the productive chain of the Chestnut-of-the-Amazon. And for this reason they have empirical knowledge about the collection of the product. In addition to being the public reached by the implementation of PGPMBio.

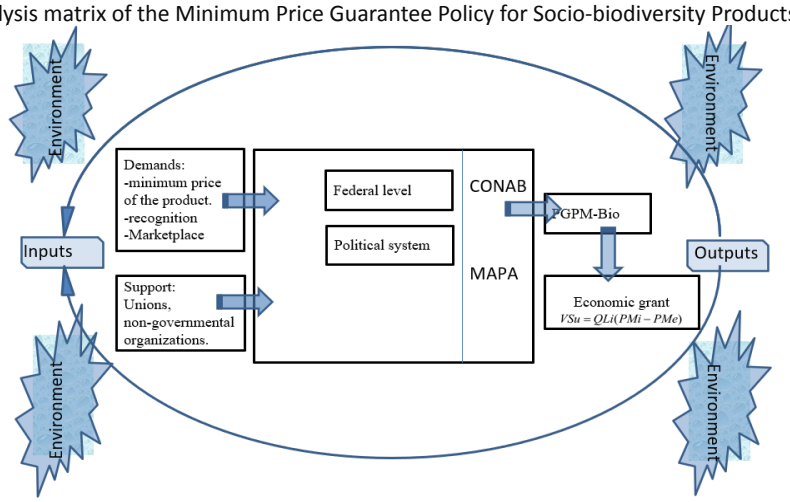
Data collection took place at three different times. The first was in the Community of Porongaba in November 2014, on the occasion the extractivists demonstrated the collection process, when a video was recorded called “The Guardian of the Forest” by Paes-de-Souza et al., (2015). The second, in the Ponta do Abunã region , Porto Velho, Rondônia, in March 2015. On this occasion, it was possible to observe *on the spot* the collection activity by extractivists. The third, in July 2015, in the Municipalities of Brasiléia, Epitaciolândia and Porto Velho, in Brazil and in the Municipality of Cobija in Bolivia, for the research of the price of materials aiming at the composition of the cost and price formation of the NTFP Chestnut-of-the-Amazon. The data of the field research were collected through an interview script elaborated using the production cost theories and the calculation methodology of PGPMBio .

This methodology was built in order to support the procedures to answer the question proposed in this research that aims to analyze the Public Policy PGPMBio, with a look at the Non-Timber Forest Product ‘Castanha-da-amazônia’ (Brazil nut). Regarding to the data analysis technique, 1) descriptive analysis was adopted, which for Flick (2009) can be a technique for interpreting textual material. 2) Easton’s analysis matrix (1957) was used. Such data were necessary to evaluate PGPMBio from the practical aspect of its operationalization from the direct questioning in the field research.

The method of analysis consists of Easton’s proposal (1957). According to Dagnino (2013) the idea is based on the notion of systemic thinking used in various areas of knowledge and carries with it the characteristic of feedback, that is, the outputs of the system are converted into new inputs.

Based, then, on this systemic thinking (DAGNIGO, 2013) and considering Easton's proposal, the following matrix was adapted to proceed with the analysis of Conab's Public Minimum Price Policy, as shown in Figure 2. Each element of the Figure exercises a function and contributes to the balance of the whole. Entries are constituted by the 'problem situation', that is, a demand present in the environment and by the 'social actors' who are the groups of interests in this problem situation.

Figure 3. Analysis matrix of the Minimum Price Guarantee Policy for Socio-biodiversity Products (PGPMBio).



Source: Elaborated from Easton (1957) and Dagnino (2013).

Social actors are considered to be supporters of the political system. Depending on the outputs obtained, new problem situations may arise and such requests indicate the need for new entries. This process is possible due to the *feedback* mechanism.

The box in the center of Figure 2 indicates the political system and is seen in this study as representative of the institutions, such as CONAB itself and MAPA. These elements correspond to those used to prepare the Minimum Price Guarantee Policy for Socio-biodiversity Products (PGPMBio).

The data for the analysis of the policy were obtained through the technical documents of CONAB, called 'Proposal of Minimum Prices' and 'Methodology for Fixing Minimum Prices', scientific papers that discuss the subject and empirical interviews. There were used also laws and rules dealing with some form of PGPM and interviews with technicians of Conab (unit Porto Velho) and agroextractivists.

4 RESULTS AND DISCUSSION

The Minimum Price Guarantee Policy for Sociobiodiversity Products (PGPMBio) operated by Companhia Nacional de Abastecimento - CONAB (National Supplying Company) sets minimum prices and allows the public administration to purchase socio-biodiversity products, understood as those extracted from biodiversity, such as the NTFP Chestnut-of-the-Amazon and Açaí.

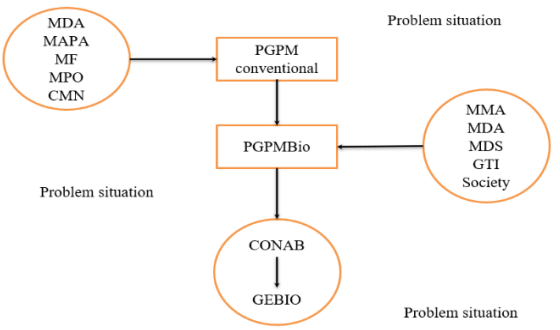
The Extractor PO1 declares that in the 2012/2013 harvest he sold his product for R$3.10, the kg. In the interviews, it was verified that the extractivists consider the time of the harvest of the Brazil nut as a prosperous phase. The Extractivists PO2 and PO5 express themselves as follows:

> The can of the Chestnut-of-the-Amazon was once paid here for us at R$ 2.00. Not now! Today, it turned gold (Extractive PO2).
> A guy sells, a guy buys, it's a lot of happiness (Extractivist PO5, when referring to the harvest period).

This topic analyzes the present policy, which contributes to the current scenario of the Chestnut-of-the-Amazon, using the analysis matrix created by Easton (1957) and presented in Dagnino (2013), adapted for this study.

The analyzed documents demonstrate that PGPMBio has the participation of the Ministry of the Environment - MMA, the Ministry of Agrarian Development - MDA and the Ministry of Social Development and Fight against Hunger - MDS, in addition to representatives of civil society, creating the first Interministerial Working Group (GTI), with the following duties: to indicate priority production chains or to review minimum prices, to approve the proposal for minimum prices; propose actions to support commercialization; and monitor and evaluate actions. In this perspective, the Socio-biodiversity Product Management - GEBIO was also created, within the National Supply Company - CONAB, to deal with issues related to PGPMBio. Figure 3 contains all the actors involved in the minimum price policy, as well as their relationships.

Figure 4. Actors involved in the Minimum Price Guarantee Policy in 2015



Source: research data.

The inclusion of other institutional actors characterized a greater decentralization of decisions, increasing the possibilities of correct actions. In traditional policy, government acquisitions and government loans are the operational instrument. In PGPMBio there is the possibility of an economic subsidy created by Law 11,775 of September 17, 2008 for extractive production (MMA, 2010). Such grants are calculated according to formula (F):

$$VSu = QLi(PMi - PMe) \text{ (F)}$$

Where:

VSu, subsidy amount to be paid in R$;

QLi, net quantity of the subsidized product in Kg;

PMi, minimum price set by the federal government at R$ / kg;

PMe, market price.

Thus, the three main differences between the conventional PGPM and PGPMBio are completed, that is, the inclusion of new products in the list of beneficiaries, new agents participating in the political decision-making process and a new operational instrument: the economic subsidy. A subsidy is one of the current expenditure modalities provided for in the Public Accounting Law, Law No. 4,320 / 1964, in the subcategory of current transfers. In the case of PGPMBio, this is financial support issued by a government entity and is non-refundable. The role of the State materialized in economic subsidies is important to boost the economy, positively influencing the market. Figure 5 is an analysis of PGPMBio.

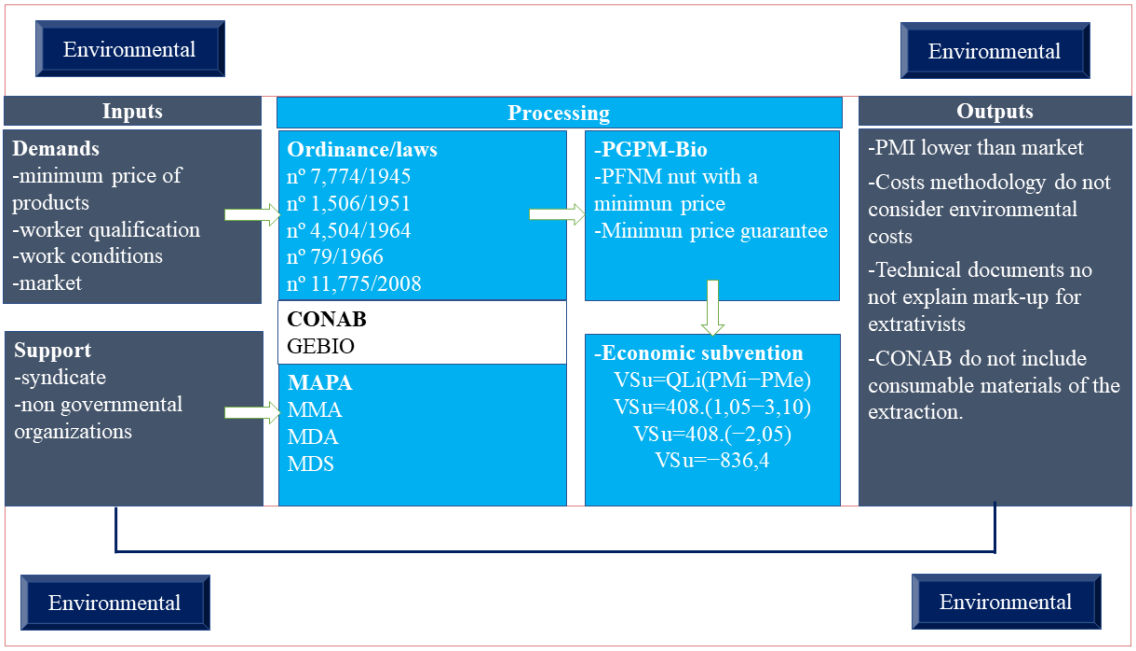


Figure 5 - Analysis of PGPMBio, from Easton (1957)
Source: Research data.

For the calculation of the economic subsidy, the production of Extractive PO1 was considered, at first, as an example. This extractivist produced in the 2013/2014 harvest the corresponding to 408 cans, sold at R$31.00 each. This implies a revenue of R$12,648.00. Considering a can of Amazonian chestnut as 10 kg, it is concluded that the kg of its production is R$3.10. The calculation of the grant, using the formula (F) would be as follows, for a minimum price of R$1.05, fixed by CONAB for the 2013/2014 vintages:

VSu = 408. (1.05-3.10)

VSu = 408. (-2.05) → VSu = - 836.40

Likewise, all the other interviewees did not meet this criterion, thus not receiving the subsidy, as shown in Table 2.

Table 2 . Demonstration of the economic grant

Place	Extractivist	Extracted quantity	Formula Application $VSu = QLi(PMi - PMe$
Acre (average selling price: R$31,00	PO1	408	-836,4
	PO2	300	-615
	PO3	40	-82
	PO4	480	-984
	PO5	102	-209,1
	PO6	400	-820
Rondônia (average selling price: R$ 29,00	PA1	120	-222
	PA2	25	-46,25
	PA3	40	-74
	PA4	400	-740
	PA5	100	-185
	PA6	70	-129,5
	PA7	330	-610,5

Source: Research data

The value found is negative, which indicates that the criterion established by CONAB, namely: selling price below the minimum price, was not met for the case of Extractive PO1.

In Table 2, it can be seen that all respondents sold their production at a price higher than the minimum established by CONAB. This conclusion refers to the reality of the interviewees, and may not reflect the living conditions of other extractivists who collect the Chestnut-of-the-Amazon.

For years, this phenomenon occurred and extractivists were subjected to painful working conditions and practiced low sales prices for NTFPs, such as the Chestnut-of-the-Amazon. It also points out that sales prices have improved, but working conditions remain the same.

The emergence of PGPMBio is the result of actions articulated by a set of actors, such as the Ministry of the Environment (MMA), Ministry of Agrarian Development (MDA) and Ministry of Social Development and Fight against Hunger (MDS). These actions occurred as a result of demands from civil society in order to pressure the adoption of practices that favor biodiversity on the part of organizations. In this sense, one of the official evidences of this demand is the United Nations Conference on Environment and Development, an event that instigated Brazil to develop national policies for the environment. According to the interviewee TEPO1, another demonstration was Operation Arco Verde, carried out by the Brazilian Institute for the Environment and Renewable Natural Resources - IBAMA, in the second half of the 2000s.

Studies by Cerqueira and Gomes (2012) also found that this conference and Brazil's commitment favored the implementation, in 2002, of the National Biodiversity Policy, legalized by decree nº 4,339 of August 22, 2002. Thus, the interviews confirmed that throughout the 1990s and early 2000s, several actions were taken, including events, scientific publications and legislation, which led to the effectiveness of this social demand.

The National Plan for the Promotion of Socio-biodiversity Product Chains (PNPSB) is a milestone as an instrument of participatory governance and seeks to recognize the knowledge of traditional peoples and communities, being elaborated based on consultations with representatives of civil society between the years 2007 and 2008. PGPMBio's analysis concluded that one of the main consequences of this plan was the inclusion of socio-biodiversity products in the list of beneficiaries of the Policy.

The primary data allowed to verify that in Rondônia the movement of the civil society for the creation of the PGPMBio happened around the year of 2007. At this time, the trigger for the inclusion of the products of the socio-biodiversity was the alarm generated by the environmental agencies about the great deforestation that occurred in the State and this caused the arrest of a series of loggers who illegally removed this product from the forest.

The technicians interviewed in Rondônia were unanimous in reporting that this policy of minimum prices is an attempt by the government to resolve the issue of deforestation in another way: contrary to the coercive way that had been leading the issue as it did with the case of the arrest of loggers in Rondônia. "This event that occurred in the State is the result of Operation Arco Verde, commanded by IBAMA, whose objective was to solve the problems of illegal deforestation in the Amazon", reinforces TEPO1.

EMATER interviewees say that in this same period, the Organization of Rubber Tappers of Rondônia (OSR) acted as a form of support in discussions on how to solve the deforestation problem in the State. The thesis defended by this union was that by improving the living conditions of the extractivists in general, they would remain in the forest and have better possibilities to explore the extraction of Non-Timber Forest Products - NTFPs for their survival. From this, they would become defenders of the forest, since the continuation of their economic activity (the extraction of NTFPs) requires the maintenance of the forest. OSR was created in 1991 with the following mission: "OSR operates in the creation and conservation of extractive reserves, implementing initiatives aimed at sustainable development, socially fair, respecting the differences of gender, race and religion" (OSR, 2000).

PGPM, as a price stabilizer, was important for agricultural production chains. The creation of a specific embodiment, the PGPMBio, came in 2008 and benefits the North and Northeast region, particularly the Brazilian Amazon, living with environmental legislation that prevents them from practicing the same implanted productive logic in other Brazilian regions contemplated since the early 1950's with PGPM in its conventional modality.

The PGPMBio emerged from the crop 2009/2010 including seven NTFPs : acai, babassu oil, rubber, chestnut of the Amazon, carnauba, palm fiber and pequi. The analysis of this type of policy cannot be carried out separately from the analysis of the conventional PGPM, because they have the same principles and are complementary. One of the differences between the two minimum price modalities, then, is in the type of product that each supports; while in PGPM they are products for farmers, in PGPMBio, they assist extractive products that benefit other agents: the Traditional Peoples and Communities and Family Farmers (PCTAFs).

The analysis of the operationalization of the minimum price policy for socio-biodiversity with a focus on the Chestnut-of-the-Amazon allows us to conclude that although the intention of PGPMBio is the observance of the social, economic, human, cultural and environmental dimensions, CONAB, the body responsible for calculation of the minimum price of socio-biodiversity products, continues to operate in a typically economic approach, in setting minimum prices for NTFPs, not including hidden costs, that is, environmental costs for socio-biodiversity products, as provided for in the policy. Table 3 comparison between the production costs calculated by CONAB to determine the minimum price for the NTFP Chestnut-of-the-Amazon, as opposed to the production costs identified in the field research.

Table 3 - Estimated costs for the product Chestnut-of-the-Amazon for the Extractive PO1, based on the CONAB methodology.

ESTIMATED PRODUCTION COST - SOCIOBIODIVERSITY				
BRAZILIAN CHESTNUT - EXTRACTIVISM / CROP 2013-Extractive PO1				
	Research data		**Conab's proposal**	
DESCRIMINATION	**R$/1 kg**	**(%)**	**R$/1 kg**	**(%)**
I – EXTRACTIVE ACTIVITY COSTS				
Operation with rented animals	0,01255	0,46	0,25	40,49
Labor	2,99	95,46	0,1	17,75
Other expenses	0,088522	4,08	0,02	2,91
TOTAL COST OF EXPENDITURE (A)	**3,10**	100,00	**0,37**	**61,15**
II - POST-COLLECTION EXPENSES	**-**	0,00		
External transport	-	0,00	0,24	38,84
Total Post-Collection Expenses (B)	-	0,00	0,24	38,84
VARIABLE COST (A + B = C)	**-**	0,00	**0,61**	**99,99**
V - OTHER FIXED COSTS	**-**	0,00		
OPERATING COST (C + F = G)	**-**	0,00	**0,61**	**99,99**
VI - INCOME OF FACTORS	**-**	0,00		
Expected remuneration on fixed capital	-	0,00	0	0,00
Land	-	0,00	0,00	0,01
Total Factor Income (I)	-	0,00	0,00	0,01
TOTAL COST (H + I = J)	**3,10**	100,00	**0,61**	**100,00**

Source: research data.

To calculate the work item shown in Table 3, a mathematical formula CT = MO + MC + PS + T, elaborated by Silva-Jean et al. (2017). Where:

CT = total cost and MO = labor and MC = consumables and PS = services provision and T = transport.

Thus, in the interviews with the extractivists, an estimate was raised for all the variables in the formula, with the exception of the MO variable, which represents the labor involved in extracting Brazil Nut. By analogy, the sales price was considered equivalent to the total cost, positioning the variables as follows, taking into account the numbers presented by the Extractive PO1:

$$CT=MO+(MC+PS)+T$$
$$3,10=MO+0,088522+0,01255$$
$$3,10=MO+0,101072$$
$$MO=0,101072-3,10$$
$$MO=2,99$$

Expenditure on 'Operations with leased animals' was considered to be the cost incurred in transporting the Brazil nut to the Association's warehouse. In the case of Extractive PO1, it is R$50.00 to transport 408 cans of the fruit. Thus, it is R$0.12255 per la or R$0.012255 per kg, if we consider that a can has the equivalent of 10 kg, according to Martins *et al*., (2008).

The same reasoning applies to the other elements of the methodology. The item 'other expenses' includes consumption materials and service station used by extractivists. One of the differences found between the numbers of the field data and the CONAB estimate is the difference between the value attributed to labor.

For CONAB, labor is equivalent to 17.75% of the total costs. In relation to the field data, the labor cost is equivalent to 96.74% of the total cost. The sale price charged by the interviewed extractivists corresponds to the production cost presented in this methodology, as calculated above. In other words, the sale values of the Brazil nut are equivalent to the price of the product. Thus, the price of the kg of this fruit, for Extractive PO4, for example, is R$14,880.00 / 480 = R$31.00 / 10 kg = R$3.10. Including all proposed variable costs. This value includes the following elements for your training: labor, material cost, cost of providing services and cost of transport.

The contribution margin is equal to zero, as it was found that there are no fixed production costs, which reinforces the low level of technology used in the production of Chestnut-of-the-Amazon, since fixed costs are directly proportional to the technological level. Another characteristic verified in the methodology is the inexistence of environmental costs, even though they are important in the process, since the extractive harvesters contribute to the preservation of the forest by collecting the Chestnut-of-the-Amazon and not being paid for it.

The Extractivist PO3 mentions a program of the federal government that sets aside annual payments of R$300.00, as support to contain the practice of deforestation. This policy comes close to a remuneration for environmental services, however the logic used provides it externally to the production system. The interviewed agroextractivists who have low income and live in the locality, regardless of their role in the forest, have the right to receive the green grant.

According to the Extractionist PO1, the creation of PGPMBio is an advance. From 2008, the year in which the policy starts, until 2015, the main improvement highlighted by the CONAB technician interviewed was the inclusion of new products from socio-biodiversity . And it is planned to include fish in the list of benefited products. The interviewee highlights as the main difference between the conventional PGPM and PGPMBio, the execution with less bureaucracy and formalization. For example, mention the form of payment of the subsidy that takes place in the bank account of the extractive worker and if he does not have a bank account, the balance is sent to the bank that pays the amount by bank order.

One of the limitations of PGPMBio is the fact that you cannot meet 100% of extractivists because they lack union between them, especially when it comes to Rondônia. The interviewee recognizes that in states like Acre and Amazonas, these practices are more evident, especially when observing the number and performance of cooperatives and associations. Muller *et al.,* (2012) identified two organizations working in this direction in Rondônia: Rondônia Rubber Tappers Organization (OSR) and Machadinho d'Oeste Rubber Tappers Organization (OSM). The benefits of PGPMBio are also highlighted by Muller *et al.,* (2012). However the analysis of the minimum price policy has observed that environmental costs are not part of the methodology, which characterizes the need for a review of its operation.

4 CONCLUSION AND STUDY RECOMMENDATIONS

The PGPMBio represents an advance for the production of Non-timber Forest Products (NTFP). For years, the extractive population in the Amazon was neglected as to the benefits of the minimum price policy. The advent of PGPMBio brought to the center of the debate the demands of these social actors, which, in itself, constitutes a merit.

The market, on the other hand, has reacted with higher prices, specifically for Brazil nuts. According to the rules of the policy, in cases where the sale price of the nut proposed by CONAB is lower than that practiced in the market, PGPMBio does not guarantee the subsidy, its operating instrument. However, it is necessary to question whether the proposed price includes all production

costs. This may signal the need to revise the calculations to include hidden costs, that is, the environmental costs of the forest. A cost increase should also impact the sale price proposed by CONAB.

This dichotomy between a market price higher than that fixed by CONAB and the merits of the policy for extractivists leads to a position on the case. This implies in stating that its reach needs to be expanded, however, the way of composing prices has contributed to the discrepancy between market and minimum price.

The results show that there is no inclusion of environmental costs and that there is an appreciation of other elements such as transportation, which benefits only middlemen. The existence of environmental costs can reduce the distance between the price practiced in the market and the minimum price, through values closer to the reality of these extractivists, thus guaranteeing more access to the subsidy resources. The inclusion of a bonus for providing environmental services in the calculation of the cost of the Brazil nut, would alleviate the discrepancy.

In addition, it would help to encourage extractivists to receive such bonuses through production, since they would only receive the bonus, the one who worked in the extraction of the Chestnut-of-the-Amazon. In this context, and the need for the Green Exchange is limited along the lines in which it is inserted.

It is suggested, as future studies, the analysis of the impact that an environmental bonus would have on the price of NTFP Chestnut-of-the-Amazon.

5 LIMITATIONS

The size of the extractivist sample, which, due to its small quantity, makes it impossible to expand the results for the entire population, being limited to the reality of the interviewees.

REFERENCES

Andrade, A. Z. B. (2009). *Estudo Comparativo entre a Subvenção Econômica à Inovação Operada pela FINEP e Programas Correlatos de Subsídio em Países Desenvolvidos*. (Dissertação de Mestrado em Administração Pública). Escola Brasileira de Administração Pública e de Empresas da Fundação Getúlio Vargas, São Paulo-SP.

Acosta, J. F., & González, Y. C. P. (2014). La teoría de los costos desempeños ocultos: desempeños ocultos una aproximación teórica. *Cuad. Contab*, 39(15), 08-10.

Birrer, S., Martins, L. N. N., Paes-de-Souza, M., & Gama, M. de M. B. (2014). Gestão de políticas públicas: análise do plano nacional de promoção das cadeias de produtos da sociobiodiversidade. In *Congresso Nacional de Excelência em Gestão* (p. 10). Rio de Janeiro, RJ: FIRJAN.

Carvalho Júnior, C de. (1995). A noção de filière: um instrumento para a análise das estratégias das empresas. *Revista Textos de Economia*, 6(1), 109-116.

Cerqueira, E. B., & Gomes, J. M. A. (2012). Extrativismo, conservação ambiental e política de preços mínimos para sociobiodiversidade. In *IV Encontro Nacional da ANPPAS*, 05-06. Belém, Pará.

Cerqueira, E. B., & Gomes, J. M. A. (2015). Sociobiodiversidade, mercado e política de preços mínimos para o pó e a cera de carnaúba. *Espacios*, 36(10), 10-12. Recuperado em 18 junho, 2015, de http://www.revistaespacios.com/a15v36n10/15361011.html

Creswell, J. W. (2010). *Projeto de pesquisa: métodos qualitativos, quantitativos e mistos*. Porto Alegre: Artmed.

Companhia Nacional de Abastecimento-CONAB. 2014. *Proposta de preços Mínimos safra 2012/2013*. Recuperado em 7 fevereiro, 2015, de www.conab.gov.br.

Coral, S. C. T., & Souza, S. A. G. de. (2009). Aspectos Silviculturais da castanha-do-brasil em sistemas agroflorestais na Amazônia Central. *Acta Amazônica*, 39(4), 30-32.

Costa, J. R., Castro, A. B. C., Wandelli, E. V., Dagnino, R., Thomas, H., Costa, G., & Gomes, E. (2013). Metodologia de análise de políticas públicas. In Costa, G., & Dagnino, R. (Org.). *Gestão estratégica em políticas públicas*. Campinas: Editora Alínea.

Dumarchey, J. (1939). Les conceptions illusoires et la conception vrai de la valeur. *Revista de Contabilidade e Comércio*, 20(25-28), 367-384.

Dye, T. R. (2008). *Understanding Public Policies.* New Jersey: Pearson Prentice Hall.

Dias, I. P. (1967). Algumas observações sobre a margem de contribuição. *Rev. Administração de Empresas*, 7(24), 2-3.

Easton, D. (1957). An approach to the analysis of political systems. *World Politics*, 9(3), 384-400.

Florentino, A. M. (1984). *Custos: princípios, cálculos e contabilização*. Rio de Janeiro: Fundação Getúlio Vargas.

Food and Agriculture Organization of the United Nations-FAO. (1999). Non-wood forest products and income generation. In *Review International of forestry and forestales industries*. ISSN 0251-1584. Recuperado em 29 setembro, 2015, de http://www.fao.org/docrep/x2450e/x2450e0d.htm#fao%20forestry

Gil, A. C. (2008). *Métodos e técnicas de pesquisa social*. São Paulo: Atlas.

Kingdon, J. (1984). *Agendas, alternatives and public choices*. New York: TBS The Book Service Ltd.

Labonne, M. (1987). Surleconceptde filière em economieagro-alimentaire. In *Séminaire interdisciplinaire surles politiques alimentaires* (p. 137-149), Paris: ORSTOM. Recuperado em 26 janeiro, 2015, de http://www.documentation.ird.fr/hor/fdi:24865

Instituto Brasileiro de Geografia e Estatística. (2013). *Produção da extração vegetal e da silvicultura*, Rio de Janeiro, 28, 1-69.

Laswel, H. D. (1958). *Politics: Who Gets What, When, How*. Cleveland: Meridian Books.

Lindbom, C. E. (1959). The Science of Muddling Through. *Public Administration Review*, 19(2), 79-88.

Morceli, P. (2007). *Metodologia para fixação dos preços mínimos*. Brasília: Conab.

Del Bel Filho, E., & Bacha, C. J. C. (2005). Avaliação das mudanças na política de garantia de preços mínimos: período de 1997 a 2004. *Revista de Economia e Agronegócio*, 3(1), 9-11.

Flick, U. (2009). *Introdução à pesquisa qualitativa*. Porto Alegre: Artmed.

Morvan, Y. (1985). *Filière de production: fondementes d'economie industrielle*. Paris: Economica.

Ministério do Meio Ambiente. *Preços mínimos para os produtos da sociobiodiversidade*. 2010.

Müller, C. A. da S., Siena, O., & Silva, N. Q. A. da. (2012). Arranjos Socioeconômicos em Reservas Extrativistas: sustentabilidade sob a análise institucional da sociologia econômica. In *XXVVII Simpósio de Gestão da Inovação Tecnológica*, 08-15. Salvador: ANPAD.

Marques Neto, F. de A. (2011). Governança pública na regulação. In Klein, A. L., & Marques Neto, F. de A. *Tratado de direito administrativo: funções administrativas do Estado*.

Nunes, F. S. de M. (2010). *Valoração florestal através de modelagem da rentabilidade da extração de extração da castanha-do-brasil em Madre de Dios, Peru*. (Dissertação de Mestrado). UFMG, Belo Horizonte.

Paes-de-Souza, M., Silva, T. N. da, Pedrozo, E., & Souza Filho, T. A. de. (2014). Los Stakeholders de la Cadena-Productiva de la Nuez de Brasil em el Estado de Amazonas-Brasil. In *Consejo Latinoamericano de Escuelas de Administración* (p. 49). Barcelona: Esade Business School. Recuperado em 20 janeiro, 2015, de https://cladea2014.files.wordpress.com/2014/10/paper_253.pdf

Paes-de-Souza, M., Silva, T. N. da, Pedrozo, E., & Souza Filho, T. A. de. (2011). O Produto Florestal Não Madeirável (PFNM) Amazônico açaí nativo: proposição de uma organização social baseada na lógica de cadeia e rede para potencializar a exploração local. *Revista de Administração e Negócios da Amazônia-RARA*, 3(2), 44-57.

Pedrozo, E. A., Silva, T. N. da, Sato, S. A. da S., & Oliveira, N. D. A. de. (2011). Produtos Florestais Não Madeiráveis (PFNMS): as Filières do Açaí e da Castanha da Amazônia. *Revista de Administração e Negócios da Amazônia-RARA*, 3(2), 88-112.

Peixoto, E. N. (2014). *Cooperativa Central de Comercialização Extrativa-COOPERACRE e as políticas públicas de incentivo à produção da castanha-da-amazônia no estado do Acre*. (Mestrado em Administração). Fundação Universidade Federal de Rondônia, Porto Velho.

Sá, C. P., Bayma, M. M. A., Silva, F. de A. C., Gonzaga, D. S. de O. M., & Oliveira, E. L. de. (2008). Estudo de caso: custo e rentabilidade para o sistema melhorado de extração de castanha-do-brasil na Reserva Extrativista Chico Mendes no Acre. In *Comunicado Técnico Embrapa 162* (52 p.). Rio Branco: EMBRAPA.

Santos, J. J. (2017). *Manual de contabilidade de custos e análise de custos*. São Paulo: Atlas.

Sabourin, Eric. (2014). Enfoque sistêmico e análise das políticas públicas rurais. In *X Congresso da Sociedade Brasileira de Sistemas de Produção – SBSP* (24 p.). Foz do Iguaçu: SBSP.

Serafim, M. P., & Dias, R. de B. (2012). Análise de política: uma revisão da literatura. *Cadernos Gestão Social*, 3(1), 25-28.

Silva-Jean, Marcos da; Paes-de-Souza, & Souza Filho, Theophilo Alves (2020). Cadeia produtiva da Castanha-da-Amazônia nos Estados do Acre e Rondônia. *Brazilian Journal of Development*, 6(11), 91277-91297.

Silva-Jean, Marcos da, Paes de Souza, Mariluce, Souza Filho, Theophilo Alves, & Silva, Tânia Nunes (2016). Nueva mirada al trabajo recolector considerando el esfuerzo humano en la preservación de los bosques en Amazonía, *Espacios*, 37(13), 1-19.

Silva-Jean, Marcos da., Paes de Souza., Mariluce, Souza Filho., & Silva, Rosalia Maria Passos (2017). Costs and prices of Brazil nuts in the states of Acre and Rondonia. *Custos e Agronegócios On Line*, 13(2), 421-447.

Souza, C. (2006). Políticas públicas: uma revisão da literatura. *Sociologias*, 8(16), 20-45.

Souza Filho, T. A. de, Pedrozo, E. A., & Paes-de-Souza, M. (2011). Produtos Florestais Não-Madeiráveis (PFNMs) da Amazônia: uma visão autóctone da cadeia- rede da castanha-da-amazônia no estado de Rondônia. *Revista de Administração e Negócios da Amazônia*, 3(2), 58-74.

Yunus, M. (2007). *O Banqueiro dos Pobres*. São Paulo: Ática.

Rua, M. das G., & Romanini, R. (2013). *Para Aprender Políticas Públicas: As Abordagens das Políticas Públicas*. Brasília: IGEPP.

Ham, C., & Hill, M. (1993). *O processo de elaboração de políticas públicas no Estado capitalista moderno*. Tradução de Renato Amorim e Renato Dagnino. Londres: Harvester Wheatsheaf.

Nascimento, L. F., Lemos, A. D. da C., & Mello, M. C. A. de. (2008). *Gestão Socioambiental Estratégica*. Porto Alegre: Bookman.

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Contribution	[Author 1]	[Author 2]	[Author 3]	[Author 4]	[Author 5]
1. Definition of research problem	√	√			
2. Development of hypotheses or research questions (empirical studies)	√	√	√		
3. Development of theoretical propositions (theoretical work)	√	√			
4. Theoretical foundation / Literature review	√	√		√	√
5. Definition of methodological procedures	√	√			
6. Data collection	√			√	√
7. Statistical analysis	√	√		√	√
8. Analysis and interpretation of data	√	√	√	√	√
9. Critical revision of the manuscript		√			
10. Manuscript writing	√	√	√		

Conflict of Interest
The authors have stated that there is no conflict of interest.

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