

Regional Development and the Indicators for Mapping of Local Productive Arrangements of Rondônia (Brazil)

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Abstract—This is a documental research, whose main objective is to present indicators for a new mapping of Local Productive Arrangements (APLs) in Rondonia and, specifically, discuss the dynamics of reference data and its importance to the investment policies with a view to regional development. The data were calculated from tables of the Annual List of Social Informations (RAIS, 2012), presented by the Regional Secretariat of the Ministry of Labor and Employment (MTE) (BRAZIL, 2014), and by census of vegetal extraction, agriculture and sylviculture available on the IBGE website, relative to 2013. It was observed that most of the APLs identified in previous studies have not been confirmed by the data of the RAIS and of the IBGE. From these data, we identified more than 100 potential APLs in the State, while are currently presented only 18. The cattle breeding, for example, appears in the previous studies restricted to a microregion only, but it is significant in seven of the eight microregions of the State. Are also quite significant the production data of fruit and fish, among other products, confirming a diversified economy in the agricultural sector; in the secondary sector, however, there are few references, most notably in larger businesses involving wood, civil construction, and strictly in Porto Velho, electricity. It is suggested to be made larger investments for APLs studies in the State, including for full mapping not only per Microregion, but also by the city, in order to identify best opportunities, fill the gaps, offer support and strengthen the endeavors. There is much that can be allocated as resource in the Multi-Annual Plans of State.

Palavras-chaves— APLs. Indicators. Regional development.

I. INTRODUCTION

A local productive arrangement (APL, in Brazil and on this paper) is more than a cluster or “enclave”,

because it does not always correspond to an industrial agglomeration and is not limited to a aggregate of economic organizations “incrusted” in a territory, although considered the interaction, interdependence or even cooperation between the elements that compose it — conditions not necessarily always present but expected or encouraged by government agencies or leaders who require governance. The terminology, evolved for Productive Arrangement, Cultural and Local Social is therefore much more complex and complete. According to Costa (2010, p. 126-127), a APL is a “[...] social, economic space, historically constructed through an agglomeration of companies (or producers) similar and/or strongly interrelated, or interdependent, that interact in a local spatial scale defined and limited by flows of goods and services.” An APL can be defined also as a group of companies or producers with common activity in the interrelation process and with sufficient representation on its territory to indicate the market trend or development condition that stands out in relation to other endeavors or forms of economy.

The Permanent Working Group for Local Productive Arrangements (GTP APL), of the Ministry of Development, Industry and Foreign Trade (MDIC), (BRAZIL, 2007), identified 460 APLs in 2004 and 957 in 2005 in the Country. Costa (2010) presented the mapping of 958 by MDIC and 762 by the Institute of Applied Economic Research (IPEA). The Brazilian Observatory site of APL (OBAPL) inserted in the Portal of the Brazilian Institute for Information in Science and Technology (IBICT), the Ministry of Science, Technology and Innovation (BRAZIL, 2015), updated these numbers to 714, distributed by region: in the North, 126; in the Midwest, 111; in the Northeast, 197; in the Southeast, 191; in the South, 89. For Rondonia, according to Costa (2010), the MDIC pointed 13 APLs, and the

IPEA, 21. It is observed, therefore, a considerable disparity of indicators of all APLs between the two institutions. Currently, the website of the OBAPL (BRAZIL, 2015) points 18 in the State.

Over time, some arrangements may disappear, while others arise, reason why is important to keep an observatory and studies for timely mapping of the arrangements, considering inclusive by microregion or city. In general, APLs are treated by geographical regions or state, neglecting the minor arrangements that are developed locally. Research must focus on microregions, justly to not despise local demonstrations or take only national parameters of reference to the definitions, classifications and subsequent interventional actions. Thus, a state matrix is much more interesting than a national as parameter, given the high concentration of business in metropolitan areas or of more advanced development and low concentration or lower diversity in the peripheral regions and of less expressive development. There is often a minor specialization in areas of greater concentration and diversity of business and a super-specialization where there is less diversity and more rarefied distribution of indicators, in relation to the volume of employment and endeavors. This happens when the comparative basis are in these two opposite conditions of concentration, as would be on a relationship between the national matrix and the of less developed states.

Given the lack of an updated mapping and presented the importance of lifting APLs from the perspective of regional parameters, the objective of this study is to present indicators for a new mapping of APLs in Rondônia/BR and specifically discuss the dynamics of the data of reference and its importance to the investment policies with a view to regional development.

II. CURRENT APLs MAPPING IN RONDÔNIA STATE

Changes in the quantity and types of APLs in the State came happening since beginning of the presentation of demonstratives. Some are expected, due to the dynamics of the arrangements, which appear and disappear over time, but others stem from the fragility of mapping studies. While Costa (2010) indicated 13 APLs from MDIC studies or 21 according the IPEA, the NEAPL (RONDÔNIA, 2012) indicated 13. According the IBGE table (BRAZIL, 2012) entitled “General data of industrial local units of enterprises with 5 or more persons employed, by Federation Units, by activity divisions — North Region — 2012”, Rondônia has been outstanding in low-tech sectors. On dimension of the extractive industry, the extraction of metallic minerals and non-

metallic are highlight, considering that the first activity comprises 13 local units with 422 persons employed, and the second, 38, whose occupational quantity is not indicated. On dimension of the manufacturing industry, stand out “manufacture of food products”, with 244 units and 14.887 people employed; the “manufacture of wood products”, with 325 enterprises and 6.149 employed persons; and the “manufacture of non-metallic materials”, with 143 units and 3.042 employees. Can also be highlighted the “maintenance, repair and installation of machinery and equipment”, the “manufacture of beverages”, the “making of clothing items and accessories”, the “manufacture of metal products, except machinery and equipment”, the “metallurgy” and the “manufacture of furniture”, according to the total of quantitative indicators. Are incipiente the activities that require technology, such as in the manufacture of chemical products or of machines, equipments and appliances.

Some of these activities with larger volume of endeavors and occupied persons already consolidate APLs in the State, such as the furniture industry. However, as Rondonia has agricultural economy profile, should be considered more informations to better map the arrangements. Currently, the Brazilian Observatory of APLs (OBAPL) (BRAZIL, 2015) indicates 18 APLs in Rondônia, according to box 1, below.

Are considered three APLs of pisciculture, located in Porto Velho, Ariquemes and Pimenta Bueno, grouped as Fishing, Aquaculture and Related Services; two of Furniture Industry in Ariquemes and Ji-Paraná; two of Fruticulture in Porto Velho and Cacoal; one of Agroforestry Systems, in Ouro Preto do Oeste; one of Sociobiodiversity and other of Tourism in Guajará-Mirim; one of Coffee Culture in Cacoal; one of Apiculture in Vilhena, and one that appears as Agriculture/Apiculture in Porto Velho; one of Cattle raising of Milk in Ji-Paraná; two of Confections in Pimenta Bueno and Porto Velho; one of Hortigranjeiro in Porto Velho; and one of Handcraft in Porto Velho, classified as Creative Economy. Are presented, therefore, eight municipal poles, most distributed along the BR 364¹.

¹ Highway connecting the north and, mainly, the Midwest of Brazil.

Box 1 — Local production arrangements according NEAPL/RO, in 2015.

APLs	Polos	Municipalities Covered
Wood and Furniture (1)	Ariquemes	Ariquemes, Rio Crespo, Monte Negro, Alto Paraíso, Cacaulândia, Itapuã do Oeste, Cujubim, Buritis, Machadinho do Oeste
Wood and Furniture (2)	Ji-Paraná	Not indicated
Pisciculture (1)	Porto Velho	Porto Velho, Costa Marques e Pimenteiras do Oeste
Pisciculture (2)	Ariquemes	Ariquemes, Rio Crespo, Machadinho do Oeste, Monte Negro, Alto Paraíso, Cujubim, Campo Novo de Rondônia, Cacaulândia, Buritis, Theobroma, Jaru
Pisciculture (3)	Pimenta Bueno	Pimenta Bueno, Espigão do Oeste, Cacoal, Nova Brasilândia do Oeste, Vilhena, Rolim de Moura, Ministro Andreazza
Fruticulture (1)	Porto Velho	Porto Velho, Candeias do Jamari, Cacaulândia, Cujubim
Fruticulture (2)	Cacoal	Cacoal, Rolim de Moura, Presidente Médici, Alta Floresta do Oeste, Ministro Andreazza, Espigão do Oeste, Alto Alegre dos Parecis, Vilhena, Pimenta Bueno
Sociobiodiversity of the Mamoré	Guajará-Mirim	Guajará-Mirim and Nova Mamoré
Agroforestry Systems of Ouro Preto	Ouro Preto do Oeste	Ouro Preto do Oeste, Theobroma, Ji-Paraná, Nova União, Mirante da Serra, Urupá, Presidente Médici
Coffee Culture	Cacoal	Cacoal, Rolim de Moura, Alta Floresta do Oeste, Ministro Andreazza, Espigão do Oeste, São Felipe do Oeste, Nova Brasilândia do Oeste
Agriculture/Apiculture	Porto Velho	Porto Velho, Ariquemes, Cacaulândia, Cujubim, Candeias do Jamari
Tourism	Guajará-Mirim	Guajará-Mirim and Nova Mamoré
Cattle raising of Milk	Ji-Paraná	Ji-Paraná, Jaru, Presidente Médici, Alvorada do Oeste, Urupá, Ouro Preto do Oeste, Castanheiras
Confections (1)	Porto Velho	Porto Velho
Confections (2)	Pimenta Bueno	Pimenta Bueno, Cacoal, Rolim de Moura, Alvorada do Oeste
Handcraft	Porto Velho	Porto Velho, São Francisco do Guaporé, Ariquemes, Vilhena, Rolim de Moura, Ji-Paraná, Cacoal
Hortigranjeiro	Porto Velho	Porto Velho and Candeias do Jamari
Apiculture	Vilhena	Vilhena, Colorado do Oeste, Cerejeiras, Pimenteiras do Oeste

Source: NEAPL-RO/OBAPL (BRAZIL, 2015)

In comparison with demonstrative of Costa (2010) from MDIC data, there are many differences, because does not appear anymore the APLs of the Rice, of the Soybean and of the Wood and Furniture of Vilhena; the of the Red Ceramics and of the Sheep and Goat Criation, in Porto Velho; the of the Fruticulture of Ariquemes and Ji-Paraná; and the of Cocoa, of Ji-Paraná. In relation to the demonstrative of the IPEA, there is an almost complete replacement, because only two remain on the map of the OBAPL (BRAZIL, 2015), the of Wood and Furniture of Ariquemes and the of Confections of Porto Velho. Already the five priority APLs of planning of the NEAPL (RONDÔNIA, 2007 a, b, c, d, e) remain indicated.

III. METHOD AND TECHNICAL RESEARCH

According to the objectives, the research is quantitative and qualitative, to present databases systematized per Microregion of the State, with an analysis of their expression and application possibilities for intervention policies or opening and business growth. According to the procedures, this is a documental research restricted to the data of employability and production of the primary and secondary sectors of the economy of Rondônia, from demonstratives of the Annual Relation of Social Information (RAIS/2012) of the Ministry of Labor and Employment (MTE) — according to its Regional Secretariat for Labour and Employment (SRTE) (BRAZIL, 2014) — and the census

of the Brazilian Institute of Geography and Statistics (IBGE) (BRAZIL, 2013). For comparative analysis, were used the data of Costa (2010), involving demonstratives of APLs of the studies of the Ministry of Industry, Development and Foreign Trade (MDIC) and of the Institute of Applied Economic Research (IPEA).

1.1 MAPPING ACCORDING TO EMPLOYABILITY DATA OF THE MTE

Due to the large informality of manpower in Brazil, as notably in Rondonia, the mapping of APLs requires different matrices of data to be related, crossed or compared. The employability matrix of RAIS, presented by the Regional Secretariat of the Ministry of Labor and Employment (SRTE/RO) (BRAZIL, 2014), on e-mail dated of April 28, 2014, indicates the volume of endeavors and persons employed during the year of 2012,

in Rondônia. The distribution of indicators by microregion was systematized in auxiliary tables, which helped to compose the synthesis of the results. Was involved in the study the calculation of the locational quotient (QL), the representativity percentage of the sector as to the number of jobs for the microregion (PRE/M) and the volume of direct and associates business. Are understood as direct business the endeavors that develop certain listed activity in the National Classification of Economic Activities (Class CNAE 2.0), presented by the IBGE (BRAZIL, 2007) and, as associates, those who have commercial, managerial or institutional relationship, as the industry dairy linked to cattle breeding bovine. Table 1 lists the main sectors of employability and their relative representation by sector in the State.

Table 1 — Personal volume occupied in Rondônia in the main sectors — RAIS 2012

Order	Type of venture (Class CNAE 2.0)/Occupancy rate	Total in the State	PRE of the Sector in the State
1	Public administration in generally	110.713	30,32
2	Artworks for generation and distribution of electricity and telecommunications	23.327	6,39
3	Slaughter of quadrupeds, except pigs	9.373	2,57
4	Retail trade of general merchandise, especially food products — hypermarkets and supermarkets	9.341	2,56
5	Bovine breeding	8.269	2,26
6	Retail trade of apparel and accessories	7.330	2,01
7	Construction of buildings	6.376	1,75
8	Retail trade of iron materials, wood and building materials	6.385	1,75
9	Vigilance and private security activities	5.865	1,61
10	Restaurants and other food service and drinking establishments	5.470	1,50
11	Trade of parts and accessories for motor vehicles	5.058	1,39
12	Unfolding of wood	4.798	1,31
13	Justice	4.569	1,25
14	Road freight transport	4.258	1,17
15	Retail trade of pharmaceutical products for human and veterinary use	4.232	1,16
16	Retail trade of fuels for motor vehicles	3.990	1,09
17	Retail trade specialized furniture, bedding and lighting equipment	3.388	0,93
18	Construction of special artworks	3.142	0,86
19	Higher education — graduate and post graduate	3.153	0,86
20	Assembly of industrial plants and metal structures	3.063	0,84

* PRE = Relative participation of the employability of the sector in the State (in %)

Source: Self elaboration, with data of the SRTE/RO (BRAZIL, 2014)

The “Administration public in general” is the sector that more focuses occupied people, according to data from RAIS/2012 to Rondônia. Were 110.713 employees at the

rate of 30,32% of occupancy. This follows, in part, of a fragmentation of the State in 52 municipalities, which

largely has not developed a potential of diversified productive chain or more intensive yet.

In following the 20 cases presented, included the works for generation and distribution of electric energy and telecommunications, with 23.327 employees (6,39% of total), the slaughter of quadrupeds, that do not include pigs (2,57%), the retail of general merchandise in which predominate the food products of hyper and supermarkets (2,56%) and the cattle breeding bovine (2,26%). A total of 11 of the 20 selected sectors are repeated as the most representative in the allocation of volume of projects and volume of employed persons, featuring a pointing logic of business trends in the State. It must be noted that the second business of the table, in volume of employment, consists in a referential that will lose much of representativity when are completed the main works of the hydroelectric plants located in Rondônia.

The locational quotient was calculated by the following formula, adapted from Crocco et al. (2003) and suggested by Costa (2010):

$$QL = \frac{E_j^i / E_j}{E_{RO}^i / E_{RO}}$$

E_j^i = Employment in the Sector i in the Microregion j

E_j = Total employment in the Microregion j

E_{RO}^i = Employment in the Sector i in Rondônia

E_{RO} = Total employment in Rondônia

Here the national matrix, of comparative base for the ascertainment of the manifestations of productive arrangements, was replaced by the state matrix, given the large differences of populational concentration, employability and business in relation to other states, such as São Paulo, whose density is disproportional to the data collected in Rondônia. Thus, a national basis would become smaller local indicators of the industry, for example, or would increase data of the agricultural sector, especially about creation of cattle breeding. As the formula adjust to the choices of the researcher as to the dynamics of its corpus, the replacement of the national matrix by the statewide shows to be appropriate to the studies developed for this article.

Employability sectors were selected (a) with the best locational quotient rates, but after definite (b) a cut from 1% of representativity in the sector in the Microregion and (c) the volume of at least 10 business or direct enterprises. Some items with volume of employability inferior to cutting patterns in the relation sector/microregion remained when other data, combined,

thereby justified in terms of representativity or importance.

1.2 MAPPING ACCORDING WITH DATA OF AGRICULTURE AND LIVESTOCK FARMING PRODUCTION AND EXTRACTIVE OF IBGE

Unlike the sectors of industry, commerce and services, whose reference (volume of persons employed) is quite specific and generic, the agriculture and livestock production data, silvicultural and extractive varies according the volume of production, unit of measure (kg, t, m³, l), the geographical occupation and market prices, as well as there is much informality in manpower occupation, so that the employability factor does not provide enough informations. Thus, it was obtained a specialization index (IE), which reflects the distribution of production in relation the territorial dimension of the region researched. To better understand this index (for microregion or city), we must confront the relative participation of production of each item (cattle breeding, manioc, orange, etc.) of the region in the state (Pr/Pe) with the relative territorial dimension (Tl/Te), similarly to the investigation of the locational quotient, thus:

$$IE = \frac{Pr/Pe}{Tl/Te}$$

Pr/Pe = Production in the region divided by the production of the State per item

Tl/Te = Local territory (em km²) divided by the total territory of the State

The indicators obtained by means of the calculations of this formula can be used to support other forms of mapping the APLs and, at the same time, subsidize the analysis of the regional development in face of public policies and others conditions of intervention. IE equal to or greater than 1 indicates specialization in setting arrangements, but, associated with the percentual representation of the local production in face of the production of the State, reflects better the results.

IV. SUMMARY OF THE INDICATORS

The mappings of productive arrangements through the locational quotient combined with the representation indices and volume of direct and indirect business are very efficient; however, in view of informality, which affects mainly the agriculture and livestock farming sector, were necessary other quantitative and qualitative measures for the demonstration of APLs of the State, with update. As this sector it could not therefore use employability as a reference, it was necessary to consider the volume of

production, the representation per sector in the State and the index of specialization in face of the territorial extension of each Microregion.

Despite the informality, it is observed in the IBGE data (BRAZIL, 2010) that the highest volume of the employed persons of Rondonia is in the sector of the agriculture and extrativism (11,88%) and in the skilled work of the agriculture, livestock farming and of the forestry extraction (8,40%). Are highlighted also the elementary occupations (9,46%) and trade and repair of cars and motorcycles (8,3%). In the industry sector, yet according to the IBGE (BRAZIL, 2012), the largest volume of local enterprises units is of the dairy industry, bovine meat, besides skin and leather of bovine and equine. The majorith of the products that are highlighted belong to the categories of “unprocessed” and low technology, with productivity in most cases much lower than expected. This information is important to define the methods and qualitative analysis of the data, in mappings.

The identification of APLs, in Rondônia, was given formally in 2007, when were drafted Preliminary Development Plans (PDPs) by the SEPLAN on request of the MDIC. However, the appointments were limited to only five priority APLs. Studies of Costa (2010) revealed new mappings of the MDIC and of the IPEA, with many differences between them. Currently, the NEAPL/RO keeps, in the website of the OBAPL (BRAZIL, 2015), 18 mapped APLs, but it was noted that the apresentação list does not include all the arrangements and it exceeds in some indications.

In studies of the employability expressed in the RAIS/2012 (BRAZIL, 2014) and of the volume of extractive production, silvicultural and of the agriculture and livestock farming provided by IBGE (BRAZIL, 2013), were not confirmed the APLs Rice (Vilhena), Red Ceramics and Confections (Porto Velho), and Wood and Furniture (Ji-Paraná and Vilhena), indicated by Costa (2010) from MDIC data; were not confirmed also all those indicated by the same author from the informations of the IPEA, except Wood and Furniture (Ariquemes). Were not confirmed, finally, 9 of the 18 APLs that appear related by NEAPL/RO in the website of the OBAPL (BRAZIL, 2015), namely: Wood and Furniture (Ji-Paraná), Sociobiodiversity of Mamoré, Handcraft and Tourism (Guajará-Mirim), Agroforestry Systems (Ouro Preto do Oeste), Confections and Hortigranjeiros (Porto Velho), Confections (Pimenta Bueno).

Four of the five priority APLs presented by GTAPL of the MDIC (BRAZIL, 2007) were confirmed in this study, staying of out the of Apiculture, of Porto Velho. Among the 13 listed by NEAPL between 2008 and 2012, were not confirmed Agroforestry Systems (Ouro

Preto do Oeste), Confections (Pimenta Bueno and Cacoal), Hortigranjeiros (Porto Velho) and Tourism and Sociobiodiversity of the Region of the Madeira-Mamoré (Guajará-Mirim). From among the 18 that the same NEAPL points out in the website of the OBAPL (BRAZIL, 2015), also were not confirmed as the volume of occupation and business, in addition to those already mentioned for the previous case, the APLs Wood and Furniture (Ji-Paraná), Agriculture/Apiculture (Porto Velho) and Handcraft (Porto Velho), classified in the Preliminary Development Plans (PDPs). One has to consider, in the case of the Handcraft, whose manpower is also quite informal, the lack of specific data for the sector in the information matrices of the RAIS/2012 and the IBGE. In view the volume of occupied personal that the Development Plan of the SEPLAN/RO (RONDÔNIA, 2014) presents, the APL Handcraft should be considered.

In industry, the number of local units, according to IBGE (BRAZIL, 2012), was more significant in sectors such as fabrication of food products (244), manufacture of clothing and accessories (77), manufacture of wood products (325), manufacture of non-metallic mineral products (143) and furniture fabrications (67), among others. Thus, the indicators relative for these sectors, obtained from RAIS/2012 (BRAZIL, 2014), should be highlighted. The six sectors that the RAIS indicates with higher volume of employment are the constructions for generation and distribution of electricity and for telecommunications (23.327), the slaughter of quadrupeds, that do not include pigs (9.373), the trade predominantly of food in supermarkets and hypermarkets (9.341) — in addition to this same indicator in smaller markets —, the bovine cattle breeding (8.269), retail sales of articles of clothing and accessories (7.330) and construction of buildings (6.376). However, trade and services do not constitute, in themselves, productive arrangements — just configure an interrelationship scenario with the respective sectors, appearing much more like business associates, in view of they usually involve common activities of all cities and are more in the ambit of maintenance than of production. Exception occurs for large business chains, but that does not appear in the information matrices in analysis.

Box 2 below is a new proposed of indication of possible APLs in the state, from the two matrices of data: RAIS/2012 (BRAZIL, 2014), that covers mainly the industry, trade and services; and the production demonstratives of the IBGE (BRAZIL, 2013), of the scope of the vegetal extraction, forestry and of the agriculture and livestock farming. It remains to observe, in the field, the relations of production, interaction, cooperation and learning.

A total of 109 agglomerations in the state for analysis of the existence of APLs were identified. In all the regions, the primary sector had the largest volume of indications, in reason of agricultural production. Fruticulture, culture of the manioc, pisciculture, poultry

culture and cattle breeding of meat and milk, especially, are a constant in all regions. The secondary sector shows up little, except for activities involving wood and building construction.

Box 2 — APLs update in Rondônia, according to data the RAIS/2012 and the IBGE (2013)

Meso-region	Micro-region	Possible APLs
Madeira-Guaporé	Porto Velho	Primary sector: 1) Products of the sociobiodiversity; 2) Extraction of wood in logs; 3) Fruticulture; 4) Culture of the peanut; 5) Culture of the manioc; 6) Pisciculture; 7) Aviculture: quails; 8) Caprinocultura; 9) Cattle breeding: bubaline Secondary sector: 10) Generation and distribution of electricity; 11) Construction of buildings; 12) Handcraft*
	Guajará-Mirim	Primary Sector: 1) Cattle raising meat and milk; 2) Sociobiodiversity products; 3) Coagulated latex production; 4) Annatto production; 5) Pineapple production; 6) Sheep breeding Secondary sector: 7) Wooden unfolding
Leste Rondoniense	Ariquemes	Primary Sector: 1) Cattle raising of meat and milk; 2) Tin ore extraction; 3) Guarana seed extraction; 4) Extraction of wood in logs and firewood; 5) black Production of kingdom pepper; 6) Fruticulture; 7) Coffee culture; 8) Rice culture; 9) Culture of the manioc; 10) Pisciculture; 11) Caprine and sheep breeding; 12) Poultry farming: chickens; 13) Pig farming; 14) Apiculture Secondary sector: 15) Wood and Furniture; 16) Construction of buildings
	Ji-Paraná	Primary Sector: 1) Cattle raising of meat and milk; 2) Forestry; 3) Fruticulture; 4) Palm production; 5) Annatto production; 6) Culture of the manioc; 7) Production of beans; 8) Horticulture: tomato; 9) Caprine and sheep breeding; 10) Pig farming; 11) Poultry farming: chickens; 12) Pisciculture; 13) Apiculture Secondary sector: 14) Construction of buildings
	Alvorada do Oeste	Primary Sector: 1) Cattle raising of meat and milk; 2) Forestry; 3) Passion fruit production; 4) Coffee culture; 5) Palm production; 6) Production of kingdom pepper; 7) Rice culture; 8) Caprine and sheep breeding; 9) Pig farming; 10) Poultry farming: chickens Secondary Sector: 11) Wooden unfolding
	Cacoal	Primary Sector: 1) Cattle breeding of meat and milk; 2) Vegetable extraction of latex and palm; 3) Forestry; 4) Fruticulture; 5) Coffee Culture; 6) Production of kingdom pepper; 7) Cocoa culture; 8) Production of beans; 9) Horticulture: tomato; 10) Culture of the manioc; 11) Corn production; 12) Pisciculture; 13) Apiculture; 14) Pig farming; 15) Poultry culture: chickens; 16) Sheep culture Secondary sector: 17) Construction of buildings; 18) Wood and Furniture; 19) Not refractory ceramics
	Vilhena	Primary sector: 1) Cattle breeding of meat and milk; 2) Extraction of wood in logs; 3) Extraction of palmetto; 4) Forestry; 5) Fruticulture; 6) Cereal production (maize and sorghum); 7) Production of soybean; 8) Pisciculture; 9) Poultry culture: chickens; 10) Apiculture Secondary sector: 11) Wooden unfolding; 12) Not refractory ceramics; 13) Construction of buildings
	Colorado do Oeste	Primary Sector: 1) Cattle breeding of meat and milk; 2) Production of soybean; 3) Extraction of latex; 4) Extraction of wood in logs; 5) Forestry; 6) Annatto production; 7) Sugarcane production; 8) Production of palmetto; 9) Fruticulture; 10) Production of kingdom pepper; 11) Cereal production (sorghum, corn and rice); 12) Production of peanut; 13) Production of tomato; 14) Pisciculture; 15) Pig farming; 16) Sheep culture; 17) Apiculture; 18) Poultry culture: chickens Secondary sector: 19) Construction of buildings

Source: Own elaboration, with data of IBGE (BRAZIL, 2013) and RAIS/MTE (BRAZIL, 2014)

The non-allocation of business of the tertiary sector (trade and services) in the box does not mean they are not important, but that trade and services may not be considered as procutive arrangements by themselves. They are important in the dynamics of the existing of the APLs, because they constitute the environment in which flows the goods and, often, where does most of the demands, when the exportation is not the main “destiny” of the products. They are the result of investments in the respective sectors and, at the same time, referentials of induction of development of the APLs.

According to the Actuation Manual on Local Productive Arrangements, of the Federation of Industries of São Paulo (FIESP) and of the MDIC (2007?, p. 9), an APL

includes companies that producing final goods and services, suppliers of equipment and other supplies, service providers, commercialization companies, customers, syndicates, associations and representations and other organizations devoted to formation and human resources training, information, research, development and engineering, promotion and financing. (Our translation).

This integration (or agglomeration) is not given as something ready, drawn, established of outside, but as a trend that is taking shape and that can grow in business volume and production, also motivated by public policies and other forms of induction.

In the wholesale and retail trade sector, the food products, the clothing articles and accessories, the furniture and other utensils or decorations, the construction materials, the pharmaceutical and veterinary products, the automobiles, motorcycles and fuel and the transports involve a large volume of personnel occupation and of enterprises in all the microregions, except for only one or some in the less dense regions. In the service sector, the motorcycle workshops and automobile and the transports also following highlighted in all the regions. In Porto Velho and Cacoal, the higher education of graduate and undergraduate shows up how important reference for the strengthening of APLs, especially in view of the

presence of the Federal University of Rondônia, of the Federal Institute of Rondônia and private training institutions in level higher.

The vegetal extraction is little expressive in the microregions, except, in some cases, for the production of wood in logs, as in the microregion of Porto Velho, in which were reached 2.389.574 m³ (59,69% of the volume in the State), according the IBGE census (BRAZIL, 2013). In the primary sector, the cattle breeding of meat and milk has not been identified only in Porto Velho, which has how differential the generation and distribution of electric energy, pisciculture and fruticulture, accordance the volume of employed persons in the first case, and the diversity or varieties species, in all other cases.

When it comes to variety of business, escaping of the alleged (and false) indication of monoculture in Rondônia, or of the expectation of APL limited to the cattle breeding sector, the Microregions of Ariquemes, Cacoal and Colorado are the most diverse, with 17 to 20 possible APLs. In addition to the cattle breeding of meat and milk, the pisciculture and the horticulture appear like strong trends of the State. Alternatively, following highlighted still wood and furniture and extraction of tin ore, in Ariquemes; the coffee culture, in Cacoal; the apiculture, in Vilhena; the cereal production, in Colorado do Oeste; and soybean production, in Vilhena and Colorado do Oeste.

The handcraft is a typical activity in all regions, but, due to the large informality resulting of individual or family manpower, does not appear in RAIS records. The location of this arrangement in several centers in the Development Plan of the SEPLAN/RO (2014) is still primary, but can affirm its presence in the State. In Ji-Paraná, for example, there are institutions such as the Craftsman House, which support the activity, as well as there are public policies of investing in actions such as the organization of municipal fairs weekly.

Box 3 rearranges APLs willing in Box 2 by type and its overflow to more than one area, only to purpose of general recognition and emphasis according to business affinity between regions.

Box 3 — Simplified distribution of the APLs of Rondônia, according with RAIS/2012 and IBGE (2013)

N.	Local Productive Arrangements	Microregions
Vegetable and mineral extraction products		
1	Sociobiodiversity products	Porto Velho, Guajará-Mirim, Ariquemes, Cacoal, Vilhena, Colorado do Oeste
2	Wood logs of vegetable extraction	Porto Velho, Ariquemes, Vilhena, Colorado do Oeste
3	Tin ore extraction	Ariquemes

Temporary crops		
4	Horticulture: tomato	Ji-Paraná, Cacoal, Colorado do Oeste
5	Peanut culture	Porto Velho, Colorado do Oeste
6	Cassava culture	Porto Velho, Ariquemes, Ji-Paraná, Cacoal
7	Rice culture	Ariquemes, Alvorada, Colorado do Oeste
8	Bean production	Ji-Paraná, Cacoal
9	Corn and sorghum production	Cacoal, Vilhena e Colorado do Oeste
10	Soybean production	Vilhena, Colorado
11	Sugarcane production	Colorado do Oeste
Permant crops		
12	Fruticulture	Porto Velho, Guajará-Mirim, Ariquemes, Ji-Paraná, Alvorada do Oeste, Cacoal, Vilhena, Colorado
13	Coco aculture	Cacoal
14	Coffee culture	Ariquemes, Alvorada do Oeste, Cacoal
15	Production of condiments: pepper of kingdom and annatto	Guajará-Mirim, Ariquemes, Ji-Paraná, Alvorada, Cacoal, Colorado
16	Palmetto production	Ji-Paraná, Alvorada do Oeste, Colorado do Oeste
17	Silviculture	Ji-Paraná, Alvorada do Oeste, Cacoal, Vilhena, Colorado do Oeste
Livestock: small animals		
18	Apiculture	Ariquemes, Ji-Paraná, Cacoal, Vilhena, Colorado do Oeste
19	Pisciculture	Porto Velho, Ariquemes, Ji-Paraná, Cacoal, Vilhena, Colorado do Oeste
20	Aviculture	Porto Velho, Ariquemes, Ji-Paraná, Alvorada do Oeste, Cacoal, Vilhena Colorado do Oeste
21	Pig farming	Ariquemes, Ji-Paraná, Alvorada do Oeste, Cacoal, Colorado
Livestock: medium and large animals		
22	Goat raising and sheep breeding	Porto Velho, Guajará-Mirim, Ariquemes, Ji-Paraná, Alvorada do Oeste, Cacoal, Colorado do Oeste
23	Livestock meat and milk: cattle breeding	Porto Velho, Guajará-Mirim, Ariquemes, Ji-Paraná, Alvorada do Oeste, Cacoal, Vilhena, Colorado do Oeste
Wood, furniture and civil construction		
24	Wood and furniture	Guajará-Mirim, Ariquemes, Alvorada do Oeste, Cacoal, Vilhena
25	Civil construction	Porto Velho, Ariquemes, Ji-Paraná, Cacoal, Vilhena, Colorado
26	No refractory ceramic	Cacoal, Vilhena
Others sectors		
27	Generation and distribution of electric energy	Porto Velho
28	Handcraft	State (Rondônia)

Source: Own elaboration, with data of the IBGE (BRAZIL, 2013) and RAIS/MTE (BRAZIL, 2014)

It was decided by an organization, in this box, that was able to demonstrate, of the shape more closely possible, the production trends, but without neglecting some specificities. So, instead of generalizing the APLs of the production of cereals, for example, were separated the of the rice, maize and sorghum, beans and soy, because each has important characteristics, such as in relation to climate and space. It is observed that soybeans, for example, only is common or constitutes APL in Vilhena

and Colorado, which are contiguous and of mildest climates, in the Southern Cone of the State; other products, such as the of the fruticulture, are quite diffuse, as well as the APLs of meat and milk cattle, pisciculture and aviculture.

It was possible, by the approximation of profiles of the APLs, so define the existence of 28 APLs, different from each other, that, when replicated by region, constitute the 109 identified in box 2. Didactically, these

APLs can be taken as reference per State, per Region or per Municipality, as per the need of use. As the site of the OBAPL (BRAZIL, 2015) considers the APLs with their multiples, when they are duplicated between regions, is needed do a review of the principles of mapping adopted by its researchers, once it that the volume is much bigger. Therefore, we can not speak of the APL of the Livestock of Meat and Milk only in Ji-Paraná, but throughout the State or in each microregion or municipality. It is urgent a process of homologation of these APLs, to establish bigger or better governance, assistance, organization.

Half of the types of APLs involves the sectors of temporary and permanent crops, followed of the livestock of small, medium and large animals. In the livestock sector, are six. Added to the extractivism, they result in 23. In secondary sector, involving wood, furniture, civil construction and power generation, only four are found. In sector, should be considered the food industries related to the agricultural sectors, but the manpower employed is less expressive that production volume in the calculations of identification of the presented specializations.

The sector of generation and distribution of electric energy is centered in Porto Velho. Its importance in terms of volume of employed persons tends to change dramatically over time, due to the completion of construction of the big works, leaving only maintenance activities.

V. FINAL CONSIDERATIONS

The APLs are not just business sets allocated in a given space, but organized in a certain way and with volume of occupation and productivity coordinated by a process of interaction, with generating income and promoting development. Not necessarily arise from a project off, but should be subsidized by public policies and other intervention proposals that lead to enjoyment of opportunities and strengths and at the same time combat the weaknesses and threats.

In Rondônia, they have not yet been fully mapped, and the corresponding studies are not diffused sufficiently, although of the records of planning, as the Preliminary Development Plans (PDPs), there since 2007 (RONDÔNIA, 2007 a, b, c, d, e; 2014). There are many differences between the data of the MDIC and the of the IPEA (COSTA, 2010) and of these in relation to those presented by NEAPL/RO in the website of the OBAPL (BRAZIL, 2015). The studies presented in this article brought an information update for a final mapping, involving the fundamental bases of appointment: employability, business volume (direct and associated) and production volume. The calculation of the locational quotient for employability and of the specialization index

for the sector of agriculture and livestock farming production (created in this study), integrated, have allowed to combine the data and identify the possible APLs of Rondônia.

The not proof of some APLs identified by the MDIC, IPEA (COSTA, 2010) and by the NEAPL/RO in the website of the OBAPL (BRAZIL, 2015), confronted by data of the RAIS/2012 (MTE, 2014) and of the IBGE census (BRAZIL, 2013), justifies the need to extend studies in this field. The proposal of indication of APLs per Microregion is an alternative to overcome the logic failure of business identification very generically, that despises the regional or local manifestations. This is what is confirmed in this study, that indicate the possibility of existence of more than 100 APLs, against only 18 identified by NEAPL/RO currently.

For example, the confections sector showed great volume of occupation and business in the commercial sector, but not in the of production, so that had not sufficient bases for identifying a APL. In parallel, many businesses have been neglected in the Microregions, as the of the fruticulture, that have enough representation for APL in six of the eight microregions, but appears in only two in the demonstratives disclosed in the website of the OBAPL. The same can be said in relation to cattle breeding of meat and milk, identified only in Ji-Paraná, but constituting the most significant APL in practically the entire State.

It is confirmed the profile of the State in agriculture and livestock farming production, with large-scale of production of fruits, cereals, coffee (in Cacoal, more necessarily), culture of the manioc, bovines, small animals (fish, chickens, pigs, bees), besides soybeans, among others, in certain locals. The economy, therefore, is quite diverse, but the productivity, too low in most cases.

Furthermore, it is suggested that be made larger investments for APLs studies in Rondônia, including full mapping not only per Microregion, but also per city, in order to identify opportunities, fill the gaps, offer support and strengthen the endeavors. There is much that can be allocated, as resource, in the Multi-Annual Plans of State and in other references of participatory planning.

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