

# FLOATING TERRITORIAL ARRANGEMENTS OF THE RIVER LAKE OF TEFÉ AND COARI IN THE AMAZONAS

<https://doi.org/10.4215/rm2022.e21011>

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## Article history:

Received 22 February, 2022

Accepted 18 May, 2022

Published 15 July, 2022

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## Abstract

The largest urban centers of the Middle Solimões River region in Amazonas State, the cities of Tefé and Coari, have hundreds of traditional Amazonian fluvial structures exercising different spatial functions, they are the floating ones. The objective of this article is to understand the role of the floatings in these cities for regional development and territorial integration. At first, a classification is proposed based on the identification of the residential, commercial, institutional and service functions performed by the floatings in both lakes. Then, a characterization and classification of the floating territorial arrangements of these cities is elaborated. This reading provides subsidies for the understanding of social and economic relations in peripheral fluvial spaces in the Amazon useful or not to integrate the territory and develop this complex region of Brazilian sociospatial formation.

**Keywords:** : Floating, Floating Territorial Arrangements, Tefé, Coari, Amazon.

## Resumo / Resumen

### ARRANJOS TERRITORIAIS FLUTUANTES DOS LAGOS URBANOS DE TEFÉ E COARI NO AMAZONAS

Os maiores centros urbanos da região do Médio Solimões no Amazonas, as cidades de Tefé e Coari, possuem centenas de estruturas fluviais tradicionais amazônicas exercendo funções espaciais diversas, são os flutuantes. O objetivo desse artigo é compreender o papel dos flutuantes dessas cidades para o desenvolvimento regional e integração territorial. A princípio, propõe-se uma classificação a partir da identificação das funções domiciliares, comerciais, institucionais e de serviços efetuadas pelos flutuantes em ambos os lagos. Em seguida, elaborou-se uma caracterização e classificação dos arranjos territoriais flutuantes dessas cidades. Esta leitura providencia subsídios para a compreensão das relações sociais e econômicas em espaços periféricos fluviais na Amazônia útil ou não para integrar o território e desenvolver essa complexa região da formação socioespacial brasileira.

**Palavras-chave:** Flutuantes, Arranjos Territoriais Flutuantes, Tefé, Coari, Amazônia.

### ARRGLOS TERRITORIALES FLOTANTES DE LOS LAGOS URBANOS DE TEFÉ Y COARI EN EL AMAZONAS

Los mayores centros urbanos de la región de Solimões en Amazonas, las ciudades de Tefé y Coari, tienen cientos de estructuras fluviales tradicionales amazónicas que ejercen diferentes funciones espaciales, son los flotantes. El objetivo de este artículo es comprender el papel de estas estructuras flotantes en estas ciudades para el desarrollo regional y la integración territorial. Primeramente, se propone una clasificación basada en la identificación de las funciones residenciales, comerciales, institucionales y de servicios realizadas por los flotantes en ambos lagos. Posteriormente, se elabora una caracterización y clasificación de los arreglos territoriales flotantes de estas ciudades. Esta lectura proporciona subsidios para la comprensión de las relaciones sociales y económicas en los espacios fluviales periféricos de la Amazonía útiles o no para integrar el territorio y desarrollar esta compleja región de la formación socioespacial brasileña.

**Palabras-clave:** Flotantes, Arreglos Territoriales Flotantes, Tefé, Coari, Amazonia..

## INTRODUCTION

Due to urban demographic growth and the increase in regional circulation, the waters close to the main cities of the Solimões region in the Amazon, Tefé and Coari (Figure 1), have been gradually occupied by traditional Amazonian structures known as float houses, usually constructed of wood, but also of iron.

Tefé, classified by the IBGE as a Medium-Sized City (2017), is the region's largest urban center, acting as a network node of regional circulation since the nineteenth century (QUEIROZ, 2017). Coari is a Local Center (IBGE, 2017) and the headquarters of Petrobrás' gas and oil exploration operations in the Urucu Oil Province. They are giant municipalities with small cities; Coari is larger than the state of Rio de Janeiro and is twice the size of Tefé.

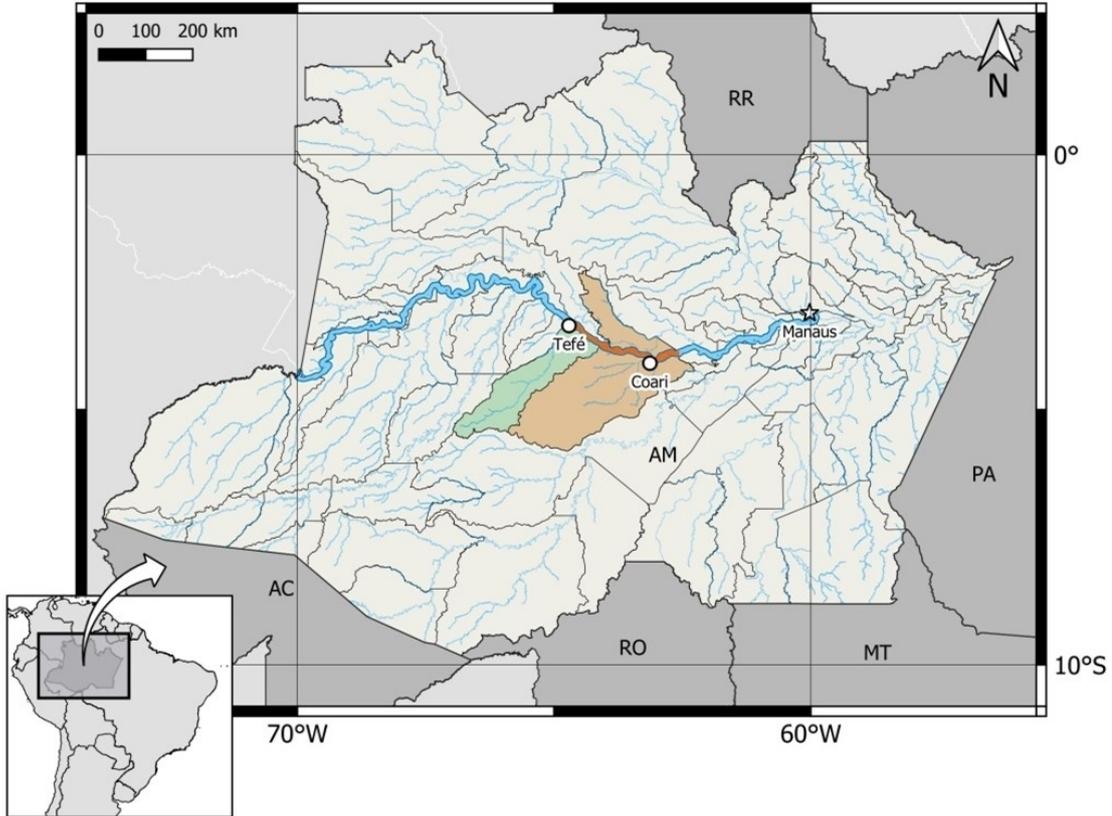


Figure 1 - The territories of Tefé and Coari in the Amazon. Source: Prepared by the authors.

As they have various social and economic functions, float houses are Amazonian territorial expressions that act as fluvial technical objects. In this sense, they represent "geographic forms" understood as "technical objects required to optimize production, by establishing and applying legal, financial and technical standards, adapted to the needs of the market" (SANTOS, 1996, p.252). They efficiently take on a variety of functions, including residences, floating fuel stations or pontoons, civil and military public institutions, wholesale and retail stores, storerooms or warehouses, berths, bars and restaurants, engine and parts manufacturing workshops, churches, ice factories, fishing refrigerators, and port terminals.

The parts of the Tefé and Coari rivers located immediately in front of their urban centers is commonly known as a "lake" due to a natural widening of the river in the form of rias. This coastal geomorphological concept of a river drowned by the sea is called a "river lake" by Sioli (1985) to define Amazonian situations.

The urban lake is the fluvial element of cities resulting from the relationships between floating agents from the lake and urban agents through significant flows of people and vessels of various types

and sizes. As a product of this process, floating communities are susceptible to the urban influences (LEFEBVRE, 1999), representing a fluvial urbanism pertinent to the presence of diverse activities and information that offers an urban rhythm to those who frequent, work, and live in the Tefé and Coari lakes (Figure 2).



Figure 2 – The urban lakes of Tefé (above) and Coari (below). Source: Own elaboration via Google Earth database, 2022.

This article aims to understand the role of floating structures on the urban lakes of Tefé and Coari in regional development and territorial integration. The guiding hypothesis is that the float houses of Tefé's urban lake promote a solidary territorial arrangement generating economic and social repercussions for the entire region and supporting development and integration. Our second hypothesis is that the urban lake of Coari has a hierarchical floating territorial arrangement with poorly diffused social and economic vectors to the region due to a compartmentalization of the territory and organizational solidarity that benefits agents from distant places.

This study's methodology used bibliographic and documentary surveys and fieldwork in both cities. Institutional interviews were conducted in the Captaincies of the Ports of Tefé and the capital Manaus, the municipal departments of Health, Environment, and General Administration of Tefé; and the "Basic Health Unit of the Ribeirinhos Enefino Monteiro" in Coari. Residents and workers of the respective floating communities were also interviewed.

The first product of the fieldwork was the measurement and identification of the float houses of the urban lakes of Tefé and Coari. The data on their structures and functions supported a classification proposal based on the "spatial elements" present, such as businesses, infrastructures, institutions, and people (SANTOS, 1985, p.16), and their functions were categorized into residences, institutions, and commerce and services. Subsequently, as a result of the analysis using primary and secondary data, the use of float houses in the lakes was interpreted as a product of specialization of the territory (SANTOS, 2002, p.87), generating spatial productivity (SILVEIRA, 1999a, p.338) through the activities carried out. This "geographical specialization of production is responsible for a massification of capital" (BARTOLI, 2018, p.4), producing a "spatial organization" (CORRÊA, 2002, p.83) whose results are differently diffused. Therefore, it was possible to identify a set of float houses arranged in the river territory with defined spatial functions and capable of influencing the region's spatial dynamics as a floating territorial arrangement.

This article enables the understanding of the socio-spatial relations in Amazonian peripheral spaces. Adaptation to the new demands of river transport and contemporary services shows the versatility of floating structures due to a diversification of functions that generate spatial productivities with different performances and regional repercussions.

## THE SPATIAL FORMS AND FUNCTIONS OF FLOATING STRUCTURES

The float houses on the waters close to the cities of Tefé and Coari (Figure 3) represent what Boaventura de Souza Santos (2002, p.259) calls in his "Sociology of Absences and Emergencies" the "ecology of knowledge, times, differences, scales and productions." This ecology is based on the diversity and multiplicity of "experiences of knowledge" and "experiences of development, work, and production" (IDEM); where the role of the caboclo and/or indigenous techniques interact with the construction of objects and technologies with alternative and regionalized forms and modes of production.

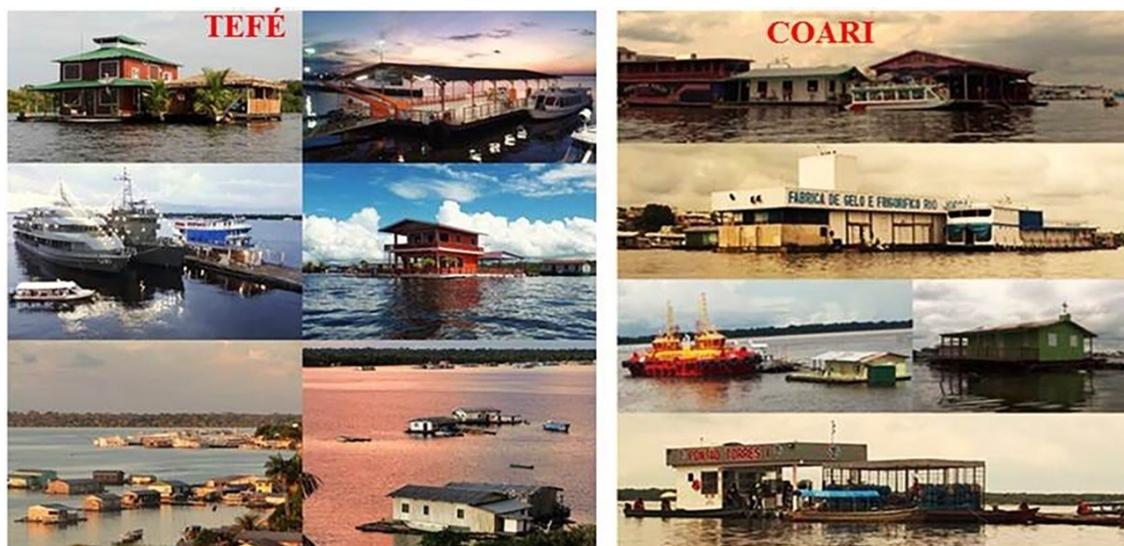


Figure 3 – The float houses of the urban lake of Tefé (left) and Coari (right). Source: Author's Archives, 2022.

According to Paula, "facing the Geography of Absences requires expanding the present and praising the place" (2019, p. 98). In the absence of state investment in port infrastructure, caboclo and riverine knowledge are used to improve and adjust old objects to meet the new demands of the constantly changing space. Modernization of the past (QUEIROZ, 2019b) allows the use of old and past objects in the present (QUEIROZ, 2020) so that traditional elementary floating structures take on

different tasks and uses.

These floating river structures in these Amazonian cities' territorial waters facilitate the activities related to the fluidity of river transport in the region and the relationships between traditional rural communities and their urban center; that is, regional river circulation. The functions of these structures are often suppressed and marginalized in the context of global logic; the float houses represent objects of a "geography of emergencies" (PAULA, 2019, p.104), where the same structure meets the increase in regional institutional, service, and trade demands of the contemporary globalization.

The float house's structure is constructed from açacu logs (*Huru crepitans*) whose buoyancy allows the structure to float on the water's surface. The piranhea (*pyranhea trifoliata* Baju Euphorbiaceae) wood used in the internal beams provides structural stability, and the walls are made of gitó (*Guarea trichilioides*) or itaúba (*Mezilaurus itauba*). Less frequently, jacareúba and chestnut trees are also used in the construction. These natural resources are widely available in nature.

A well-made wooden float house can last thirty years. Iron float houses, more stable but more costly, have lower durability. A 1-meter square concrete block called a poita is maintained on the river bottom, acting as an anchor. The float house's geographical position is read by the Port Authority and recorded to provide the NADAOPOR document, which recognizes the legality of the structure. In Tefé, there is an Agency of the Port Authority with extensive territorial jurisdiction in the Amazon; however, Coari does not have this Naval Agency, so the local procedures are subordinate to the Agency of the Port Authority of Manaus.

Float houses' spatial functions can be classified from the available spatial elements: businesses, institutions, infrastructures, people, and the ecological environment (SANTOS, 1985, p.16). Based on this, to better understand the dynamics of these geographic forms in the urban lakes of Tefé and Coari, the following classification of their functions is suggested: i) institutional; ii) commercial; iii) services; iv) residential (Table 1).

<b>Parâmetro quantitativo</b>	<b>Tefé</b>	<b>Coari</b>
Quantidade de flutuantes	491	219
Quantidade de Flutuantes institucionais	24	5
Quantidade de indivíduos funcionais institucionais	92	17
Quantidade de Flutuantes Comerciais	41	15
Quantidade de indivíduos funcionais comerciais	168	36
Quantidade de Flutuantes de serviços	99	21
Quantidade de indivíduos funcionais de serviços	321	70
Quantidade de Flutuantes Domiciliares	113	161
Quantidade de moradores no lago urbano	555	536
Total de flutuantes com funções definidas	276	202
Total de indivíduos funcionais	1.136	659

Table 1 – Measurement of float houses in the urban lakes of Tefé and Coari. Source: Prepared by the authors.

The urban lake of Tefé has more than twice the number of float houses as Coari, 491 and 219, respectively. However, in both lakes, many float houses do not have Port Authority records; they are coupled to a legitimately recognized floating structure and often perform different spatial functions from the main structure, mainly piers or warehouses of goods for public institutions or urban firms (Table 2).

Funções Flutuantes	Institucional	Comercial	Serviços	Domiciliares
Tefé	1 – Exército 2 - Capitania dos Portos 3 - Polícia Civil 4 - FUNASA 5 - SESAI 6 - FUNAI 7 - Prelazia de Tefé 8 - Prefeitura de Tefé (2) 9 - Instituto Mamirauá – IDSM (3) 10 - Igrejas da Assembleia de Deus (2) 11 - Igreja da Universal 12 - Sindicato de Catraieiros 13 -Sindicato dos Pescadores 14 - Associação dos Catraieiros JATÃO 15 - Associação dos Catraieiros DC CHAGAS 16 – Associação dos Catraieiros Nossa Senhora da Vitória 17 - Associação Catraieiros da Ponta Branca 18 - Cooperativa dos Catraieiros de Tefé 19 – Flutuante do “Cais de Tefé” 20 - Colônia dos Pescadores	1 – Frigoríficos (8) 2– Mercados (12) 3 – Mercarias (15) 4 – Pontões (6)	1 – Catraieiros (5) 2 – Oficinas (Indústrias-Serviço) (15) 3 – Transportadora 4 - Técnico de informática/celular 5 – Carreira/estaleiro (2) 6 – Costureira (3) 7 – Cabelereiro (2) 8 – Fábricas de gelo (8) 9 – Entrepósitos de pesca (9) 10 – Vendedores informais de combustíveis (13) 11 – Terminal das Lanchas Ajato 12 – Depósitos (15) 13 – Atracadouros ou Marinas (18) 14 – Balsa-porto 15 – Bares e restaurantes (4) 16 – Escola Infantil	Moradores
Coari	1 - FUNASA (1) 2 - Igrejas (3)	1 - Mercarias [2] 2 - Mercados [1] 3 - Pontões [8] 4-Comerciantes extrativistas [4]	1 - Oficinas [10] 2 - Atracadouros [4] 3 - Bares e restaurante [2] 4 - Fábricas de gelo [2] 5 - Carreiras/estaleiro [5]	Moradores

Table 2 – The functions of the float houses of the urban lakes of Tefé and Coari. Source: Own elaboration with information from the Municipal Secretariat of General Administration, Tefé Finance Planning; Tefé Municipal Health Secretariat; Coari Municipal Health Secretariat; 2021.

It is noteworthy that of the 491 Tefé float houses, only 276 have defined functions. In Coari, 202 of the existing 219 have a recognized spatial functionality. Many of them are clustered to the main float house or abandoned in the river.

The float houses' various functional attributions lead to an "interchangeability of functions" (SANTOS, 1985, p. 17) so that a structure has more than one spatial function. Thus, a residential float house provides concomitant services, including small business or family grocery store, berth, bar, or beauty salon for haircuts or manicures. In Tefé, these simultaneous functions are carried out by institutions that share the same float house with other entities performing different services, such as the police and public educational agencies, and health bodies of different state hierarchies. These multiple functions of the same float house also occur in Coari, but there is more emphasis on service activities due to the low presence of institutional float houses.

However, the greater number of institutional float houses in Tefé indicates an added spatial value (MORAES and COSTA, 1999) linked to the city's position in the regional circulation network flows, the "territory's intrinsic potential" (COSTA, 2008, p.243) given its strategic location near the mouth of the Tefé and Japurá rivers and in the geographic center of the state of Amazonas. This "geographical situation" (SILVEIRA, 1999b, p.27) led to a historical process with broad spatial selectivity linked to a "hierarchy of places" (BENKO, 2002, p.53), promoting technical, normative, and primary infrastructure contributions to maintain vital flows for regional integration through institutional activities that subsidize territorial fluidity (ARROYO, 2001).

This more significant institutional presence in Tefé's urban lake inhibits but does not prevent the actions of river pirates or water rats in the floating community. In Coari, criminals from the Amazon

waters are the greatest fear of floating residents and riverine dwellers in the municipality (QUEIROZ, 2020). The public institutions based in Tefé allow a superior effort and presence of state agent supervision in providing the safety of the traffic of vessels and passengers compared to Coari. The presence in Tefé of a logistics base of the 16th Jungle Infantry Brigade of the Brazilian Army and the Port Authority provides constant military flows of warships such as Corvettes, research, and health vessels. The Federal, Military, and Civil police have vessels moored in shared float houses for missions in the region. In Coari, the recent creation of a Arpão Base on the Solimões River (a float house with staff from the National Security Force and the Military Police) aims to mitigate pirate attacks on communities and the urban lake and repress drug trafficking and smuggling in the region.

There are a total of 45 commercial fluctuations in the urban lake of Tefé and 15 in Coari. In Tefé many traditional riverine dwellers and city people shop at floating wholesalers with the best prices in the city, evidence of the valuable lake-city relationships. Floating fuel stations or pontoons and ice factories are essential to supply the city's numerous regional river transport vessels, fishing boats, and businesses. In Coari, the demand for fuel and ice is significant due to the higher presence of vessels from Petrobras outsourced companies.

Notably, Coari has float houses exclusively for trading extractive products, including the purchase and sale of nuts, jute, and cocoa. In Tefé, this occurs through negotiations on pontoons with an interchange of functions. This difference indicates the presence of trade agents from ancient territorial divisions of labor when regatões (merchants navigating the Amazonian rivers active in the nineteenth and early twentieth centuries) were the major players in regional trade.

The service floating houses demonstrate the versatility and diversification of the spatial functions performed by these structures in the urban lakes of the Solimões river, promoting spatial productivity by generating employment and income in the lakes. Tefé has 99 float houses and occupies 321 people in service activities, while Coari has 21 float houses with 70 service workers. Similar services are found in both lakes, such as bars, restaurants, warehouses, and moorings. In Tefé's urban lake, the iron float of the Lanhas Ajato passenger terminal is a modernization of the fixed river circulation assets in the region (QUEIROZ, 2019a); it is a registered company with owners of other regional passenger transport.

The activities of floating workshops that can be configured as "service industries" (SANTOS, 2002, p. 66) are noteworthy. These are "vehicle repair workshops, which can turn into metallurgical workshops, even feeding modern industries with difficulties in providing spare parts;" Tefé has 15 of these floating workshops, and Coari has 10. In Tefé, they offer engine repair services for various vehicles.

Many of these floating service industries are equipped with industrial lathes and technical expertise of their mechanics in the manufacture of different aluminum parts for customers of the city and surrounding municipalities, thus establishing local and regional flows. They manufacture parts for vessels and even small aircraft ordered by regional companies in Tefé (QUEIROZ, 2018). However, the greater presence of "slipways" or vessel maintenance shipyards in Coari's urban lake shows the organizational centrality pertinent to the needs of gas and oil exploration companies, producing a functional integration via the services offered to Petrobras' outsourced transport firms.

Finally, residential float houses are found in greater quantity in the two lakes. In Coari, 161 household float houses accommodate 536 residents, while Tefé has 113 household float houses and 555 residents. They are more numerous in Coari than Tefé, but Tefé has a slightly larger population of floating residents. Tefé's urban lake's residents have garbage collection, public safety, and access to electricity through submerged cables, although most of them still use power generators to obtain electricity.

Purchasing a houseboat costs one-third of the value of a house in a neighborhood in the city. Residents have access to the internet via cell phones, cable TV, and appliances and are close to schools and health centers. These conveniences attract many families to reside in float houses.

The interchangeability of functions is more evident in this category of floating structures. It is common for many floating households to provide the usual mooring services in both urban lakes, like warehouses, bars, restaurants, family grocery stores, and snack bars.

## THE FLOATING TERRITORIAL ARRANGEMENTS OF THE URBAN LAKES OF SOLIMÕES

"It is the interaction between the internal situation and the processes of penetration of capital from outside that allows each society its own trajectory of urban development" (ARMSTRONG and McGEE, 1985, p.32). In this segment of the Amazon region, the most significant exchanges and relationships occur via rivers due to the absence of a road and rail network; there are few aerodromes, although Tefé has an airport with national companies and flows. In the meantime, urban waters have become the object of a social analysis relevant to territorial integration and regional development in cities located in the middle of the largest river basin in the world, the Amazon River.

The urban lakes of Tefé and Coari are subspaces aggregated to the regional urban fluidity where the relationships between state and private agents, both internal and external to the city, generate the productivity of the river space. The float houses' activities allow urban lakes to link rural and urban as a stage of connections and exchanges.

The diversification of float houses' functions from the same traditional structure improves the circulation dynamics in the face of the advance of the activities of the regional urban network. In this sense, traditional Amazonian float houses have taken on the dynamics of new actions, demands, consumption, and contemporary spatial processes linked to the increase in relations and the acceleration of activities in peripheral spaces with few port infrastructures and cities with limited spatial elements.

Meanwhile, when places fail to meet the needs of primary activities to serve the "urgent needs of the population" (SANTOS, 2002, p.87), there is a valid specialization of space. Space specializes when it meets the local and regional market's most profitable economic and social demands, depreciating other less valuable needs. However, historical objects, fabrics, processes, and spatial forms continue to act less vigorously, governed and dominated by new demands (QUEIROZ, 2019b).

However, the relations of domination that control the urbanization process provide specializations and spatial productivities with different territorial diffusions of the results obtained. In this way, floating territorial arrangements are a product of an organization of fluvial space, where a set of float houses performing defined and diverse spatial functions can influence regional spatial dynamics. They are solidary arrangements that reflect economic and social results, providing territorial integration and regional development. They can also be hierarchical when lower repercussions generate functional integration and vertical solidarity.

### FLOATING TERRITORIAL ARRANGEMENT SOLIDARITY – THE URBAN LAKE OF TEFÉ

The urban lake of Tefé has exercised territorial functionalities since the nineteenth century when sailors stayed overnight in the old village of Ega because the lake was sheltered from the currents, bad weather, and insects of the young Solimões river (BATES, 1979). In 1941, its waters received the Panair do Brasil's Catalina amphibious plane's weekly flights between Manaus, Tefé, and Iquitos in Peru (QUEIROZ, 2015). The "Feirão de Fábrica Chevrolet a Bordo" ferry has recently sold vehicles on the lake, attracting customers from surrounding municipalities. This spatial vitality allows local floating structures to participate as fixed elements of Tefé's "peripheral centrality" (QUEIROZ, 2016, p.94) in the Amazon. The result is a solidary floating territorial arrangement that benefits the repercussion of economic and social results in the region.

The activities of the Tefé float houses employ 1,136 people in a fluvial community with regional (river transport), national (institutional relations such as Navy and Army), and international relations (with ecotourism activities of the Mamirauá Institute for Sustainable Development (IDSM) and the Tefé Prelature). The 491 float houses are the yeast that animates the river space with different services and diverse trade, providing a floating territorial arrangement keen to provide lake dwellers with social areas with public services such as garbage collection, electricity, and public safety. The proximity of the float houses to the neighborhoods of Abial, Juruá, and the city center gives floating residents access to schools and health centers.

The solidary floating territorial arrangement of the urban lake of Tefé contributes to the fluidity of the river warehouses, where the agricultural, fishing, and horticultural production of the entire region circulates and is marketed in the local Municipal Market or directed to the Manaus' transporters. The city's floating pier receives the ships (N/M), ferryboats (F/B), motorboats (L/M), and ferries that transport passengers, goods, and merchandise to supply trade in all the municipalities of the Middle and High Solimões, the 107 communities of the Tefé river and all the municipalities of the Japurá river as well as the Middle and Lower Juruá.

Tefé is one of the earliest cities in Brazil (THÉRY and MELLO, 2009, p. 53; QUEIROZ, 2015); its historical process allowed it to accumulate infrastructures, businesses, people, and institutions capable of subsidizing economic, political, and social supports and producing organic integration in a complex territory, poor and distant from the country's decision-making centers. In this context, the use of territory by Tefé's floating geographic structures is a floating territorial arrangement in solidarity with territorial integration and regional development by seizing and disseminating the results of regional circulation.

## HIERARCHICAL FLOATING TERRITORIAL ARRANGEMENT – THE URBAN LAKE OF COARI

In the urban lake of Coari large floating asphalted port structures, a Small Port Facility (IP4); and powerful maritime tugboats from global companies coexist with old wooden float houses marketing extractive products and others housing several families in the same structure. A display of inequalities, poverty, a "spatial dialectic" (SILVEIRA, 1999a, p.400), and a deficient spatialization of space.

Characteristics of fragmented peripheral territories serving the interests of distant agents are evident. The hierarchical floating territorial arrangement manifests greater socio-spatial complexities because it involves geographical phenomena that cause society more harmful social and economic consequences.

Few institutional float houses and many residential float houses operate in the urban lake of Coari, with notorious segregation and restricted economic and social dynamism visible in the social areas of the Pêra neighborhood and close to the city center. Insecurity is the most feared social impact of the floating community due to the presence of criminals known as water rats and river pirates. Even with the presence of the Arpão Base on the Solimões River (outside the urban lake) supervising the vessels coming from the Upper Solimões River to Coari, the residents and workers of the local float houses remain in fear.

"Oil has become a curse because the revenues it generates for governments are abnormally large, do not come from the taxation of citizens, fluctuate unpredictably, and are easy to hide from public scrutiny" (ROSS, 2015, p. 318). Between 2010 and 2016, Coari received almost 3 billion reais in royalties (2,727,827,571.19 reais) (QUEIROZ, 2020), while in the same period, Tefé<sup>1</sup> received just over 83 million reais (83,340,400.18 reais). These astronomical amounts were mismanaged by the local public administration, causing social and environmental consequences reflected in corruption and public safety.

In this scenario, the urban lake of Coari has proved to be vulnerable both to the violence from the municipality (local thugs) and regional violence (pirates). The restricted presence of floating institutional security agents such as the Port Authority has overwhelmed the Arpoão Base, corroborating a territorial vulnerability. As an institutional parameter, Tefé has 103 military police officers on its staff, while Coari has only eight military police officers; both cities have similar urban networks.

Coari's hierarchical floating territorial arrangement results from the impacts of vertical solidarity and compartmentalization of the territory. Territorial compartmentalization is a product of the globalization process that provides advantageous functionalities both for particular global territories and the interests of companies and states (CATAIA, 2011; SANTOS, 1996; SILVEIRA, 1999a). This process is due to spatial practices, that is, individual actions of spatially located social agents (CORRÊA, 2007), leading to activities that produce a territorial fragmentation arising from the lack of local reflection in the production of global network companies (ARROYO, 2001).

"Everything that existed before the installation of these hegemonic companies is encouraged to adapt to their ways of being and acting, even if it causes great distortions in the pre-existing environment, including the breakdown of social solidarity" (SANTOS, 2000, p.85). Oliveira (2008, p.183) states that despite all the oil wealth, Coari has few relevant links with the other cities in the network, and its economic development does not add value either locally or regionally.

Finally, the low performance of floating geographic structures with spatial functions useful to lake-city relations in Coari has generated reduced socialization of spatial productivity and incipient social and economic repercussions to the region, thereby provoking a hierarchical floating territorial arrangement that contributes less to regional development and territorial integration.

## CONCLUSION

The increase in population and the advance of the regional urban network on the Solimões river allowed the river spaces close to the main regional urban centers, Tefé and Coari, to be occupied by traditional float houses. However, the improvement and diversification of the spatial functions of these artisanal technical fluvial objects led to spatial productivity by specializing the floating space that reproduces the city's urban dynamics.

It was found that floating territorial arrangements were the result of the activities of a set of float houses with defined spatial functions capable of influencing regional spatial dynamics through activities classified as institutional, commercial, service, and residential.

The solidary floating spatial arrangements are perceived in the spatial dynamics of the urban lake of Tefé, a city that plays the role of a regional circulation network node. As fluvial geographic forms, these float houses promote: i) employment and income generation; ii) housing for those with less purchasing power; iii) improvement of the fluidity of the activities of private and public agents through the internal (urban) and external (regional) flows to the city. These changes are accomplished by improving fixed assets, the inland waterway transport flows of passengers and goods, and agricultural and fishing production, thus providing better economic and social diffusion for territorial integration and regional development.

Meanwhile, the hierarchical floating territorial arrangement in the urban lake of Coari, is the product of the hierarchical relations resulting from organizational solidarity and compartmentalization of the territory resulting from the exploration of gas and oil by Petrobras; this causes a functional integration to the detriment of territorial integration. The main consequences are revealed in public safety and inequalities in the social areas of the floating community arising from the reduced spatial capacity of socialization of economic and social benefits in the city and visible in the low presence of institutional floating structures and the management of the lake.

The different functions of the floating urban lakes of the Solimões River in the Amazon allow us to reflect on the territories' resilience, the creativity of the "invisible," and the efficiency and versatility of traditional caboclo structures. The performance of these objects in the Amazonian periphery demonstrates the limits of spaces where the dominant rationality does not act with the same vigor. Therefore, other regionalized and ancient rationalities take on the role of spreading the relationships that foster life and hope that articulate space.

## NOTE

1- It is noteworthy that in addition to Tefé, Manaus and 16 other municipalities in the Amazon, 17 municipalities in Pará and 3 in Amapá receive royalties generated by Petrobras' activities in the Amazon (GARCIA, 2010, p.128).

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