Periódico Eletrônico
Fórum Ambiental da Alta Paulista
ISSN 1980-0827 – Volume 17, número 2, 2021

"ICMS Ecológico": possibilities of support for the Urban Green Areas System in the building of healthier cities

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Periódico Eletrônico
Fórum Ambiental da Alta Paulista
ISSN 1980-0827 – Volume 17, número 2, 2021

ABSTRACT

The Urban Green Areas System (UGAS) performs relevant functions for the quality of life by making cities healthier, which has become even more necessary in the current period of pandemic. However, even with these benefits, the practice of urban management indicates difficulties not only in the implementation, but also in the maintenance of the UGAS. One of the aspects that may explain the challenge of implementing and maintaining green areas in cities is the absence of regulatory instruments and financial incentives that support this system. In this line, in order to contribute to this discussion, one of the instruments that proved to be effective in environmental management will be studied, in this case for the creation and implementation of Conservation Units: the "**ICMS Ecológico".** This article will study the characteristics of the UGAS associated with ecological and urban functions; the logic of adopting the "ICMS Ecológico" and will seek to define criteria that can be used for the implementation of a UGAS that prioritizes ecosystem thinking associated with the function of urban health. We started with the discussion about the mechanisms for adopting the "ICMS Ecológico" and followed the analysis of the standards established in the states for its application. As a result, it was found that there are similarities that can be applied to an implementation in the urban green area systems, which allowed the recommendation of criteria that can be used as a reference for the application of the "ICMS Ecológico" to support the UGAS and the promotion of healthier cities.

Keywords: Green spaces system; Urban instruments; ICMS Ecológico

1. INTRODUCTION

"(…) man is like a tree; People surround it while it bears its fruit. But when the fruit it bore has gone, they leave it to endure the heat and dust", **Proverb of "The Thousand and one Nights"**

The cities lived through several cycles of diseases, pandemic or local, that forced them to reinvent themselves. Today, 2021, we are going through another moment of division and resumption, in which COVID-19 requires not only research for vaccines, serums and medicines, but new interpersonal attitudes as well as revision of private and public spaces. People need to wear masks, be far away from each other and there is a latent need for environments with greater ventilation and amplitude, not only indoors, but especially outdoors, such as parks and squares, where we can exercise, calm our minds or simply receive a little sun after closed hours at home.Thinking about this situation, it turns out that few cities can guarantee these conditions. Where are the green areas that could help improve urban health? In addition to quantity, we should discuss its quality and location within the structure of the city. Furthermore, although the world is experiencing these pandemic difficulties and their consequences, needing to focus and spend on hospital beds and financial aid measures, it is necessaryat the same time, a rearticulation and expansion of urban green areas, as these are spaces of prevention and environmental rebalancing.An urban green areas system (UGAS) that attends both the life and the environmental quality of cities can be a powerful agent of urban transformation. Combined with an efficient environmental urban planning, it allows not only new infrastructure solutions (linked to ecosystem logic) - with reflections on improving water quality, air circulation and purification, positive psychological effects and thermal control – but it is fundamental for the control of COVID-19, among a diversity of other diseases[1].

[1] Various authors talk about this question, like Farah (2004), Maas *et al* (2006), Amato-Lourenco *et al* (2012), Van Dillen *et al* (2012), Nowak *et al* (2014), James *et al* (2015), Mascaró and Mascaró (2015), Romero (2016).

However, although there are these benefits, what we still see is an inertia in the structuring of UGAS in cities. This fact can be explained by real estate pressures that maximize the occupation of quarters and, on the other hand, by the inefficiency of public power, in which add the minimization of the importance of the quality of urban space, the lack of supervision of private agents and the low public budget to create and maintain green and free areas. Well-structured green areas are not cheap, few generate direct financial return and need constant maintenance.

One possibility of finding funding for them, in addition to the pressure on the increase of the public budget or private investments (also rare), is to seek support in economic management instruments. Through bonuses, subsidies, compensations and tax resource allocations, economic instruments are a very viable alternative to seek resources for demands of lesser market interest, because, attending to a pre-established criterion, the public administration can be able to both invest and maintain green areas directly, as well as encourage private entities to do the same.

One of these instruments, **the "ICMS Ecológico" (Circulation tax on goods and services - ecological[2])**, is already a concrete reality in Brazil, having been responsible for a welcome expansion of conservation units (CU's) in the municipalities and having been expanded to other socio-environmental objectives. These conditions provide an opportunity to define criteria in such a way that they are applied to **support urban green area systems and, consequently, urban health actions**.

2. OBJECTIVES

Investigate the potential of economic instruments to be adopted in the management and implementation of urban green area systems (UGAS) using the case of the "ICMS Ecológico". Define the possibility of its applicability to establish criteria that anchor the ecosystem logic in the definition of UGAS contributing to urban environmental planning and the promotion of healthier cities.

3. METHODOLOGY

The article is based on the study of urban ecology to discuss the role of green in cities, which migrates from an anthropocentric view, traditionally adopted since the beginning of urbanism, to more recent positions where ecosystem vision is necessary to achieve the many benefits that can come from UGAS.

Urban green has stood out for presenting several environmental solutions since it was implemented, being usually multifunctional (GILL *et al.*, 2007). By greening the city, we are promoting operations related to leisure, to the protection of waterbeds, assisting in drainage, reducing direct radiation, and filtering the air and to the beautification of the spaces – health,

[2] *"Imposto de circulação de mercadorias e serviços – Ecológico"* in portuguese.

aesthetics, sociability (MASCARÓ, MASCARÓ, 2015).In general, in the wide urban context, these areas are not thought of alone (at least they should not be), being networked and consequently tied to a system (UGAS). Each fragment is responsible for some actions (drainage, microclimate, fauna attraction, etc.) and, in a chain, shape the local ecosystem. Understanding the system and not only the elements that compose it is important, because it is about gears that do little on their own, but that can work well together, distributing responsibilities (SANT'ANNA, 2020). Knowing this, we will place what we understand as points to be observed for its establishment, as aspects that contribute to the achievement of its various functions for healthier cities.

From the idea of multifunctionality of urban green areas and their contributions to the urban environment, this paper discusses the role of planning and its management tools to achieve the objectives of the UGAS.

The city needs to be thought of in a global way for the implementation of its green areas, so that they have ecosystem functions and promote health and urbanity to the spaces (BEZERRA, CAPELLI, 2007; SANT'ANNA, 2020). In planning, zoning and typologies are established, indicating the best places for certain spaces to meet the needs of socialization and greening (SANT'ANNA, 2020). This process often uses instruments established in urban legislation, which create mechanisms and criteria for intervention in urban space.

To do this, we need management and planning tools, which can be regulatory or strategic in nature, the first type being related to spatial parameterization (zoning, subdivisions, code of construction) and the second for actions focused on specific objectives, supporting management actions (incentives, public-private partnerships taxes, fees, etc.) (RIBAS, 2003).

Within the second category, the **economic instruments** stand out**,** which indicate the possibility of financial support. At this point, it is discussed that in Brazil, some of these instruments have already been used in support of environmental management, especially since the 1990s, as is the case of the **"ICMS Ecológico".** The ICMS, which is traditionally distributed by the states to municipalities due to their economic activity, is also allocated due to the achievement of environmental or socio-environmental goals. Thus, it has been constituted as a source of interesting financial support, generating a positive impact not only on revenues, but on the planning of cities (NASCIMENTO *et al*., 2011).

Finally, adopting the "ICMS Ecológico" as a model, its application is studied for the implementation and maintenance of UGAS with new criteria and focuses, such as urban health, for the promotion of other ecological structures in cities. Therefore, the question that guides the work is: **What criteria can be established for an ICMS division that supports the implementation of UGAS in the promotion of healthier cities?**

4. DISCUSSION AND RESULTS

4.1. The importance of the Green Area System

The **urban landscape** is a cultural, morphological and ecological mosaic (KESHTKARAN, 2019). Although we have a strong association in common sense that landscape refers to the natural world, it is actually built by both anthropic and natural elements. In the case of the urban

landscape, the building elements stand out, from *the skyline* of the buildings to the parcels and roads, as well as their green spaces (KESHTKARAN, 2019).

These last, the **green areas** in the cities, are key elements to qualify this urban landscape and in the direction of environmentally sustainable cities, that have circular metabolisms, where cycles close (such as water or energy) and guarantee quality of life to the inhabitants. In turn, the open spaces of multiple character (private or public, with more than one function) will support a diversity of natural elements, whether trees, whether fauna, water or soil in order to create conditions for the promotion of various services - environmental, of health or of leisure (MACEDO, 1995; MASCARÓ, MASCARÓ, 2015; SILVA, 2017; DUARTE *et al*,2017).

For some researchers there are tenuous points that differentiate spaces such as green or not, inferring the need for a certain tree quantity, the pure existence of plants or even the presence of social and economic functions (MACEDO, 1995; BENINI, MARTIN, 2010). For this research, it is believed that just having trees, such as on a tree-lined street, is not enough, being important to identify **urban green areas systems (UGAS),** which will include both more consolidated and more fragmented spaces. Although all vegetation, in isolation, has its environmental, social and economic contribution, the systems to which they belong encompass functions of a larger character in cities.The urban and peri-urban UGAS is thus composed of isolated fragments, green corridors, parks (1), squares, forests and groves (2), waterfronts (3), permanent protection areas (APA's) or areas of relevant ecological interest included in the system of conservation units (APA's, ARIES etc.) (6), legal reserves, backyards, lawns (4), gardens, vegetable gardens and orchards (5) (Figure 1). Certain areas may be within others, such as gardens and backyards or parks that may be inserted in APA's, but what matters to us is that the landscape is formed by a mixture of these spaces added to the interaction with the built. Then, we see the relevance of having instruments that enable this whole system to be implemented and maintained for an improvement of its functions in cities.

Figure 1 - The system of green areas and its various elements.

Source: Matheus Maramaldo (2020)

It is worth discussing, then: **What would be the criteria to improve this articulation of green areas with cities in ecological, urban and health terms?**

4.1.1. Priority characteristics for UGAS (healthy cities + resilient green)

A first argument can be pointed out in favor **of diversification or multifunctionality.** A system can be made of equal parts, but usually a good system is structured through different elements, with complementary or supplementary roles, preferably with more than one utility.

Therefore, it is relevant to encourage the deployment of green areas in all scales and types of spaces. The smaller ones attend the microscale; the medians have a greater radius of action and serve as intermediaries for the larger ones; large spaces, such as urban parks and reserves, have greater complexity in the implementation, by the measure and technical details, but are those that guarantee greater integrity to the system with the presence of waters, where the animals have greater space for circulation and have a macroscale character, connecting the city with its neighboring areas. It is, therefore, a criterion for structuring the UGAS to serve the **different urban scales.**

A second point to stand out is **the articulation of functions.** Green areas by green areas are not justified, they should link their presence to a specific context within the planning action (so that the action is not isolated). By connecting the implementation of green areas to the protection of waterbeds, springs, greater permeability /drainage or improvement of the urban microclimate, their function become more visible, being the adoption of standards and instruments for their reach within the planning process clearer. In the theme explored here, if the goal is to have healthier cities, the search should be to facilitate the creation and maintenance of spaces that expand the offer of leisure to users, favor ventilation, filter water and air, protecting them from excess metals and harmful gases.

A third aspect to prioritize is **connectivity,** because this is the basis of a system. The green and free areas in the different urban scales must be connected conforming the system and maintaining its ecosystem logic. The urban instruments that define the spatial planning must have parameters that ensure the distribution of green areas both within the limits of cities and in the center of cities, where there are more shortages of these spaces in the different elements of urban morphology (streets, vacant lots, built lots, expansion areas, etc.).

To ensure that these criteria are check, it is necessary to set **goals and parameters.** It is expected the compatibilization of the meters that they must occupy by zone of influence (a neighborhood park serves X people), the % of different species, the capacity of rainwater absorption or the % of afforestation to attend the above indexes, as should be related to the **ecological performance** of the implanted areas. In addition to quantifying the spaces and number of trees (focus on the element), it is necessary to also look for the improvement of the performance of ecological functions. This is a much more complex point, because the degree of variability and exigencies changes a lot for each space, but it is essential to ensure the functions required by UGAS. Considering the health of people in cities, we start for % reduction of particulate elements and number of air renewals, % bacterial reduction of water and soil, or

beyond, levels of happiness, anxiety, or stress, which are parameters with more qualitative diagnosis.

In this sense, we can verify some indexes: WHO (WHO, 2021) indicates 9m² per inhabitant as the minimum of green area that there should be in cities, with 12m² being satisfactory and 50m² ideal; the Brazilian Society of Urban Afforestation (SBAU) (1996) considers the standard 15m²/inhabitant of green as the minimum to be desired for a healthy city; studies such as that made for the Campinas Green Plan (2015) also consider the type of area and distance for the calculation, being equal to the Green Area with Social Function of a basic territorial unit (UTB) (which can be a neighborhood, for example) divided by the total population of the UTB, being less than 10 low, between 10 and 50 medium, and above 50m²/inhabitants high.

With the defined criteria, we can start the discussion of the economic instruments that can support in their implementation.

4.2 Economic management instruments: the case of the "ICMS Ecológico" in Brazil

The instruments available for the planning of cities are many and very varied, and we can find those of legal-administrative character that excel in defining rules for the use of spaces or natural resources and those of economic character (fiscal and market), which seek to encourage agents to do certain actions or not (JOÃO, 2004; BIRTH, 2012).

In this conjunct we have the Master Plans, zoning, and specific codes, from urban postures to the layout of buildings. Regarding environmental management, there are several other legal provisions such as codes related to water, ores, fauna etc. all recounting the forecast of taxes, fees or fines that aim to regulate access to natural resources. These are all normative and administrative instruments that can be supported in achieving their objectives by **economic instruments (EI's).**

The green area system is both a component of urban spatial planning and an arm of environmental management concerns, and, like that, must rely on instruments to support it, especially if the focus is also on urban health. These instruments, in addition to being able to tax and create subsidies, enable financial support for environmental initiatives, where it has been most used in Brazil, as urban (including in parallel health):

> Economic instruments (Es) are increasingly being used in many countries as mechanisms to improve the performance of environmental management. [...] At one extreme, they include fines or penalties that are linked to traditional "command and control" (C&C) regulations. At the other extreme, they include less interventionist approaches, which require consumer advocacy or private litigation to act as incentives to improve environmental management. At the center, we find more common tax and/or subsidy approaches, as well as mechanisms based on marketable property rights (MOTTA, YOUNG, 1997, p.5, our translation).

In the environmental field, it is possible to point out the use of taxes, such as the "IPTU Verde", which subsidize those who plant or maintain green areas intraurban lot, and the compensations, which transfer the burden of environmentally harmful practices for the

financing of plantations, green spaces or even the structure of management and supervision itself, but the **"ICMS Ecológico"** is the one that has achieved the greatest effectiveness.

4.2.1. The "ICMS Ecológico" as an instrument of socio-environmental policy

Nascimento *et al* (2011), referring to the **"ICMS Ecológico"** as an economic instrument of environmental management used in Brazil, state that it is a fundamental instrument in the country, where there is still great difficulty in making government entities, owners and the general population understand the need for environmental conservation.

To understand it, we must begin with the original tax, the *Tax on The Movement of Goods, Goods and Services (ICMS).* Fruit of the taxing of commercial transactions, in which, through a specific law, it allocates a percentage to municipalities (OUTEIRO, 2019). Deeping through these percentages, by effect of federal law, 25% of the state ICMS collection is destined to municipalities, as explained by Outeiro (2019):

> The legal treatment of the ICMS is in Complementary Law No. 87/1996 (Kandir Law). In general, the Magna Carta, in Art. 158, determines the transfer of 25% of the amount raised as ICMS in favor of the municipalities. Thus, 75% of the amount collected goes to the State itself and 25% to its municipalities. [...]
> According to the Constitution, these 25% that are in the municipalities are distributed as follows:
> I) 75% (or 18.75% of the 100% of the ICMS), at least, based on the Value Added criterion (municipalities that were the spatial basis for the occurrence of the ICMS generating event); and
> **II) 25% (or 6.25% of the 100% of the ICMS), at most, based on criteria set out in specific state law** (OUTEIRO, 2019, pp.4-5, emphasis added, our translation).

The first 75% are usually passed on according to the economic production, territorial area, and population size, without large margins for other parameterizations (nothing prevents in the law that is the criterion used for the transfer of 100%).

The innovation in the distribution of this tax for environmental purposes began in the State of Paraná (1990-91), which had a large part of the municipality of Foz do Iguaçu as a conservation unit in a state that most municipalities are highly productive in grains. Thus, in order to compensate the municipality of Foz do Iguaçu, a differential was established for the remaining 25% of the ICMS to be transferred as environmental compensation (so a "productive" value was attributed to preservation). It was about attributing a value to the Iguaçu National Park of high national and international value. And so, one of the first environmental economic instruments in the country was established, and today there are already 17 Brazilian states that use the "ICMS Ecológico" as a criterion of this transfer.

The "ICMS Ecológico", unlike the original tax, works in terms of extra-taxation (working beyond the goal of the collection). The criteria for its operationalization are very direct in its argumentation, expressing in a few lines what it is and what objectives it is intended to achieve, preferably with topics or tables with indicators of achievement evaluation and goals.

In the different Brazilian states, this instrument is also called Environmental, Sustainable... but it always has the objective of distributing part of the main collection resources in a subsidized way to the cities that best work for the environment and/or sustainable actions according to specific criteria (BRITO, MARQUES, 2017). Therefore, it is not only a question of distributing financial resources, but of establishing financial compensation of states for municipalities by sustainable public policies strengthening the initiative with more resources, either with the increase and maintenance of preservation areas, indigenous lands, etc., which restrict urban expansion, or by slowing the advance of mining, extractivism or agricultural practices, for example, "harming" their economies in favor of maintaining the environment (LOUREIRO, 2001).

In these laws, scores are adopted for the State to compare how much each municipality has advanced or maintained environmental valued points, serving to distribute monetary values (BRITO, MARQUES, 2017). Although they hold strategic differences, we can simplify as adopted evaluation criteria: % of the territory destined to CU's, APA's and APP's; % reduction of air, water and noise pollution and deforestation; % treatment of solid waste or sewage; % of areas registered in the CAR (rural environmental register); % of fires and environmental education actions. Although it has expanded to several other initiatives, in general, the distribution of resources associated with Conservation Units predominates.

There is a strong concern in maintaining or expanding areas of CU's in the municipalities, besides having auxiliary measures to ensure more green areas in the territory in reducing deforestation and in the CAR. A practical example can be seen in the State of Rio de Janeiro, which, according to Conti *et al* (2015), in the 2000s, municipal CU's had growth close to 200% from the effective date of the "ICMS Ecológico".

Such criteria may be more quantitative or more qualitative. For example, in the State of Goiás, Complementary Law No. 90 of December 22, 2011 instituted that it is enough for the municipality to meet at least 3 criteria to receive 0.75% of the value destined to the "ICMS Ecológico", and may reach 1.25% meeting more criteria:

> a) solid waste management actions;
> [...]
> b) effective environmental education actions, in the urban and rural areas, in schools and groups of organized society, instituted through municipal law and/or specific programs;
> **c) actions to combat and reduce deforestation, with due supervision and proof of the effective recovery of degraded areas – reforestation;**
> d) programs to reduce the risk of burning, and soil, water and **biodiversity conservation;**
> **e) program for the protection of public water sources;**
> f) identification of sources of air, sound and visual pollution;
> [...]
> g) identification of irregular buildings;
> [...]
> **h) programs for the institution and protection of environmental conservation units;**
> i) drafting of legislation on municipal environmental policy; (GOIÁS, 2011, n.p., emphasis added, our translation)

In the State of Paraná (PARANÁ, 1990; *Idem*, 1996), several laws and decrees govern the calculations for the allocation of resources, not being so simple to receive state funding. The municipality cannot simply have CU's or reserves with water to raise part of the ICMS, but must also ensure a minimum water quality in certain stretches, considering biodiversity, number of native trees, water turbidity and flow, for example. So, the State, through inspection, will attest if they were planted or if there are X Araucarias in the perimeter of the municipality, if there are Y% of contaminants in the water etc.

In the State of Rio de Janeiro (RIO DE JANEIRO, 2007), on the other hand, the law values even more the promotion of CU's in municipalities, however in a quantitative way, with a text that allocates almost 50% of the resources for this category:

> area and effective implementation of conservation units of private reserves of natural heritage - RPPN, as defined in the SNUC, and Permanent Preservation Areas - APP, 45% (forty-five percent), and of this percentage 20% (twenty percent) will be computed for areas created by municipalities (RIO DE JANEIRO, 2007, n.p., our translation)

And so, follows the regulations of the other 14 states of the federation.

According to João (2004), a risk of the quantitative argument of the undefined establishment of conservation areas is that of a retraction of the municipal collection itself over time. If all municipalities stop at this, they will all have an equivalence of protected areas, with those who dropped out of the front having their income reduced over time and all will receive similar percentages at the end. Another issue is with goals that are not updated over time, creating a stability if the minimum criteria have already been reached, with no incentive to seek more actions.

This argument leads to two observations. First, if all municipal authorities in a state have CU's as a result of the stimulus of the “ICMS Ecológico”, it means that the goal has been achieved. This leads us to the second observation: that economic instruments should be periodically reviewed, and new targets added according to the dynamics of what is intended in terms of territorial policies, whether environmental or urban, which opens space for encouraging the implementation of better structured UGAS. For this reason, the “ICMS Ecológico” is shown among us as an instrument of an economic and fiscal nature already tested, fulfilling its objectives of encouraging the creation of CU's throughout the country, being possible now to redirect efforts to focus more on the intraurban space, supporting urban planning.

Anyway, let's return to our parallel with the green area systems. How does this relationship between the “ICMS Ecológico” and UGAS take place and where can it advance in promoting ecosystem and health logic in cities when dealing with these areas?

4.3. Achieving of the “ICMS Ecológico”: New Perspectives for UGAS?

In general, it is noticed that in these almost 30 years of history, the “ICMS Ecológico”, where it was applied, has achieved many of its objectives, being deeply important for the

maintenance of water, soils and protection of the diversity of fauna and flora (CONTI *et al,* 2015; BRITO, MARQUES, 2017). Thus, it is appropriate to adapt its use in order to promote the implementation of UGAS, because it is an objective compatible with what has been used in environmental management. With its application in the urban area, a larger portion of the population will be prioritized, probably impacting more people's daily lives.

From this idea and the understanding of the diversity of scales, multifunctionality/diversification and connectivity of spaces, what parameters could be adopted for the established criteria? Considering what has been applied in environmental management mentioned above, a study was conducted to identify parameters associated with the characteristics idealized for UGAS and, thus, to be able to adopt ICMS resources for UGAS:

a. Multifunctionality/Diversification: it is concerned to the different typologies and roles of green spaces. If we seek to create sanitary cordons, leisure, cultural, productive or contemplation areas, in the text of the law there must be a distributive forecast equally pulverized. The tax can be based on how many squares, parks, vegetable gardens, etc. the municipality has created, and it is important to establish limits or bonuses for each type of area (e.g. Alfa municipality created 5 squares in the first year and received 0.01% of the "ICMS Ecológico" value; the following year, the same municipality created 1 square, 1 linear park and 3 community gardens, receiving 0.03% of the ICMS value).

b. Connectivity: it deals with the incentive to green mesh. If the UGAS is composed of fragmented areas, it is equally fragile, not reaching other objectives, so the parameters associated with the ICMS here need to be linked to the decrease of distances between green areas. The transfer, in this way, can be tied to urban green connection indexes such as the number of green corridors created or the average of the distances between green areas, which can lead to payment for the variation of this index or by the achieved value itself.

c. Different Scales: it is about to the incentive to increase the footage of green areas. Here, the effort is basically to pay for creating/preserving green spaces, so the transfer of the tax should describe how much is worth the expanded or maintained m² in the cities. Another interesting parameter is that of m²/inhabitant or trees/inhabitant, in which the transfer may be tied to the achievement of the value of WHO, SBAU or others.

d. Ecological performance: it deals with the quality of spaces in promoting their ecological functions. It is sought not only more green areas, but more green areas promoting solutions for the city, and there is an improvement in the performance of its functions. The distribution of the ICMS can consider parameterization by qualifying the % of permeable spaces, % of the improvement of urban environmental comfort, increased biodiversity, greater social interaction or the improvement of stress and respiratory disease rates, for example. Although some of these points are more conceptual than others, they are all still possible to be measured and can be associated with indexes to guide ICMS transfers.

In order to monitor the achievement of the objectives, some possible indexes are: % of the increase in green areas in urban areas *versus* hospitalizations; % increase in afforestation *versus* happiness index[3]; % of recovered river banks *versus* cases of cholera or dysphtheria;

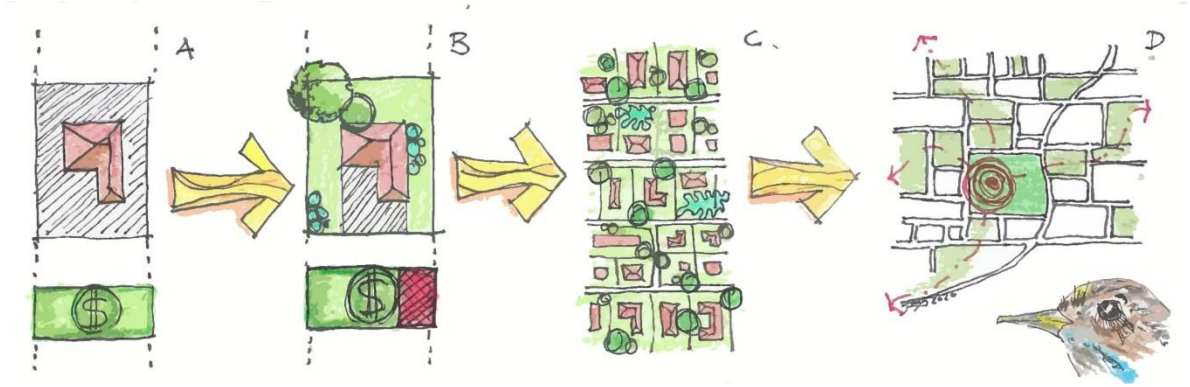
[3] At first, it may be the internal happiness index (WBS), but there are other measurements.

leisure areas and urban activities per inhabitant, intentionally worrying about spreading more spaces that may be the encounter of inhabitants with nature. It is important that the law specifies how these spaces should be implemented to ensure expected ecological, health and urban benefits.

It is important to emphasize that there is a need for a balance between quantitative and qualitative goals so that both support the justification for the transfer of resources. Observing the experience in environmental management, this consideration is already verified in the daily routine of the "ICMS Ecológico" of Paraná, in which it is defined for monitoring some standards of water quality and biodiversity, and the transfers are not automatically made by serving the numerical expansion of protected areas. The objective is to define monitoring methods to check the achievement of the environmental preservation objective and, at the same time, have transparency of the counterparts. In more synthetic laws verified in other locations today, this is hampered because they do not detail neither the parameters nor how to monitor the objectives to be leveraged.

Finally, the impact of the "ICMS Ecológico", associated with UGAS, can translate into environmental and life quality for urban dwellers. The parameterization related to intraurban spatialization, that is, the definition of criteria that advance in the construction of a green areas system that permeate the cities, tends to be the strategy to reachthe healthier city (Figure 2).

Figure 2 – The "ICMS Ecológico" can clearly promote intraurban green areas and functions such as healthiness



Source: Matheus Maramaldo (2020)

5. CONCLUSION

After our investigation, we conclude that the support for the management and implementation of green area systems through economic instruments is indeed possible, being an interesting way to finance urban green spaces. The economic instrument that we have deepened, the "ICMS Ecológico", has several possibilities for this support, since it already accumulates good results in the expansion of protected areas, as well as is aligned with other initiatives to promote environmental sustainability and the improvement of urban quality.

It was verified in the studied experience that it is essential to have clear and objective criteria for its application. Also, the study of the characteristics of a UGAS with ecological, urban and health functions showed us that it is possible to list criteria for the construction of urban green areas systems. Thus, multifunctionality/diversification, connectivity, scale, and ecological

performance were defined as characteristics for which basic parameters were sought. These parameters should be adapted to the context of each locality, according to the priority of the public administration and without changing the initial objectives for which the instrument was created.

The use of the "ICMS Ecológico" in addition of the parameters reported will probably serve to the construction of systems that promote greater benefits to cities, because there will be more money for the expansion and maintenance of urban green areas, such as parks and squares, and in parallel this financing will be tied to conditions that favor the strengthening of these areas. Having larger footage of intraurban green, together with the increase of connections and typologies, we will inevitably improve the quality of life and urban environment, with greater filtration of air, water and soils, less stressful landscapes, increasing outdoor activities, among other benefits and uses connected to other fields (drainage, thermal comfort, production etc.).

In a world practically inverted in the face of a pandemic, facilitating the promotion of spaces in which people will be more exposed to natural elements and less to soot, daily stress and even viruses, seems to be a path to pursue as well.

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