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Sustainability and Resilience of Emerging Cities in Times of COVID-19

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Abstract: The organization of a territory relies on a group of transformations produced by economic, environmental, and social emergencies, generating disruptions along with history. Furthermore, every new scenario generates a considerable impact, which makes it more difficult to recover from increasing urban ecological footprints. COVID-19-emergence-aware cities face new challenges that will test their resilience. This new outline constitutes a study regarding urban planning from an environmental and resilience perspective within this new pandemic state of emergency. It contains four main topics: emergent cities, natural resources, sustainability, and resilience. The document shows a case study carried out in a Colombian town named Cajicá, where a bibliometric inquiry conducted with PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) adjustments was managed, tested on forty-one scientific papers; all the above were verified by VOSviewer software tools. The study reveals the creation and visualization of several keyword networks and relations retrieved from all the selected articles, along with the use of eight additional documents for all relation analyses. Sustainability and resilience are the main findings, supported as a process of functionality within urban planning. Sustainability findings' results are prioritized, along with resilience analysis processes, which are both frameworks used during the COVID-19 pandemic; they constitute the main argument within this set of changes, building on alterations of lifestyle and behavioral situations within the main cities.

Keywords: resilience; emerging cities; sustainability; COVID-19

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1. Introduction

When we examine urban planning, the structure of a territory rests on a group of transformations produced by economic crises and the reduction of natural resources due to inappropriate administrations, leading to economic, social, and environmental disruptions across history. Furthermore, every new scenario generates a considerable impact, which is difficult to recover from. As a consequence, this increases the urban footprint [1]. COVID-19-emergence-aware cities face new challenges aimed to test their resilience competence, revealing with this several issues related to infrastructure losses, public utility purveyance, urban planning, and governance; all the above lead to considerable social, economic, and environmental impacts [2], demonstrating the inadequacy of sustainable development objectives (SDO). As a result, we present the following inquires: What kind of changes has the COVID-19 pandemic generated regarding sustainability and resilience in emergent cities? What is, in this case, the main challenge these emergent cities have to deal with?

To answer these questions, after all quarantine and curfew intervals, citizens from metropolitan areas considered rural lands with lower population denseness, along with medium cities, as ideal zones to safeguard themselves from the virus outbreak. This raised their mental health, generating an unexpected departure without considering that all these areas could not meet their basic needs. All the above produces conflict among a rural community that tries to maintain a virus-free environment [3]. The Inter-American

Development Bank (IDB) categorized these emergent cities into new forms of metropolitan areas. Inside the case study, we will examine a place (Cajicá, Colombia) located inside a strategic location within the Colombian National Road System.

In the ongoing COVID-19 scenario, government organizations have taken restrictive measures to decrease the infection rate, without ignoring local problems, which has generated a considerable impact on the administration of vital natural resources that can support this crisis. Thereby, it is necessary to address this analysis by considering two factors: one concerning the main actions to control the emergency (e.g., the high demand and use of potable water for handwashing), and other factors produced by habits and lifestyles (e.g., the use of chemical substances for household cleaning) [4].

In summary, it is relevant to understand the sustainability concept provided by the United Nations (UN), enclosed in Sustainable Development, which presents two criteria. The first aims to meet all needs across generations; the second specifies present and future generations, where time acts as a key variable within the sustainability concept. In conclusion, we can define sustainability as an ideal goal, whereas sustainable development is the procedure we must follow by considering all social, economic, and environmental areas.

Thus, a bioregional approach towards territory planning is appropriate, perceived as a region delimited by geographical limits and determined by ecological systems, both allowing for ecological processes, satisfying the territorial demands for the preservation of native species, understanding factors regarding biological resources, and social cohesion [5,6]. Consequently, the importance of connections between rural and urban areas is reflected, turning this into a complex symbiotic network that connects goods and services, playing a determining role in the perspective of the territory as promoters of sustainable management.

In this uncertain scenario created by the pandemic, increasing our capacity for improvement and adaptation is urgent. Resilience is the result of a process where organizations work to anticipate and respond to ongoing external threats [7,8]. It is not a concern about leaving behind principles of order and logic; instead, it is about integrating them into a deep and complete scheme, thus allowing adaptive agents to emerge that exhibit more complex structures and actions that permit evolutionary resilience, which leads to taking advantage of the diversity of factors existing in a region and benefiting from the cooperation between territories to guarantee the sustainability of exchanges between them, preventing the development of one territory/area at the expense of the other and seeking to relieve inequalities or territorial polarization in terms of economy or job opportunities, among others [5,9].

2. Method

The present research started by looking at existing research available in multidisciplinary scientific journals, focusing specifically on the availability of information associated with conceptualization in conjunction with different viewpoints used for territorial management from sustainability and resilience perspectives. Further assessment of the progress was made by various researchers worldwide, ranking and considering peer-reviewed journal articles. Figure 1 shows the analysis process carried out in four phases:

a. A compilation of the information was carried out in several scientific database search engines (Scopus, Web of Science, and Google Scholar) through the use of Boolean operators "AND" and "OR"; the inclusion of documents whose titles or abstracts contained the words listed below, from 2006 to 2021, appear in the following list:

   TITLE-ABS-KEY ("sustainability") AND
   TITLE-ABS-KEY ("resilient cities") AND
   TITLE-ABS-KEY ("COVID-19") OR
   TITLE-ABS-KEY ("emerging cities").

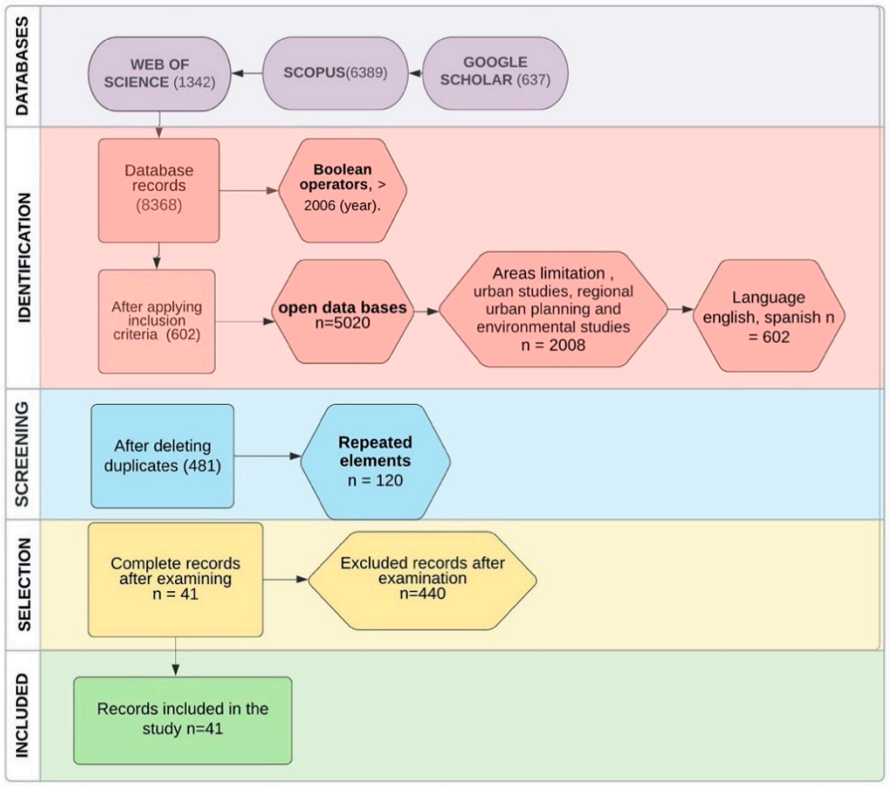

Figure 1. Analysis method.

The inclusion criteria used were open data investigations limited to the following areas of interest: urban studies, regional urban planning, and environmental studies. In addition, the research included articles and books written in English and Spanish.

b. Identification of duplicates was required, as well as some articles that appeared in more than one database.
c. For the quality evaluation, the PRISMA tool (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) was used for each article, providing an objective comparison between the articles and their classification.
d. Finally, grouping was applied through the use of VOSviewer®, applying to the latter a viewer of keywords where they were correlated, giving a weight to each word according to the number of times it was mentioned in the selected information.

By this approach, the analysis of both similarities and differences between sustainability, resilient cities, COVID-19, and emerging cities allow the mark of crucial elements used for their conceptualization. To achieve this, eight documents were included, among which were reports, guides, and conferences performed by agencies such as the United Nations (UN), United Nations Environment Program (UNEP), and the Center for the Implementation of Public Policies Promoting Equity and Growth (CIPPEC, by the Spanish acronym) for a total of 49 documents.

e. All in all, results, and further analysis regarding this research, were carried out in Cajicá, a town located in Cundinamarca (Colombia), considering this area as a place that fulfills the requirements established by the Inter-American Development Bank (IDB) regarding emerging cities. Moreover, we will analyze chronological data regarding potable water and solid waste consumption and generation rates by 2019–2021; We retrieve the mentioned data from "Empresa de Servicios Públicos EPC Cajicá" company. We identify monthly potable water record volumes (Measured in m^3), as well as a town's provision and exploitation of solid waste (Measured in Tons) report. All the above allowed us to establish a monthly consumption–exploitation

average data, thereby this method allows us to explain all upcoming situations before and after the COVID-19 pandemic [10].

Co-Occurrence Analysis

To better understand the approach towards sustainability and resilience in cities in the COVID-19 scenario, we used the method stated above in 49 documents from 1992 to 2021 included the Boolean formulation, building keyword, and co-occurrence networks. Figure 2 shows the dominant position using the VOSviewer® tool: 12 terms out of 122 in total linked inside the topics studied

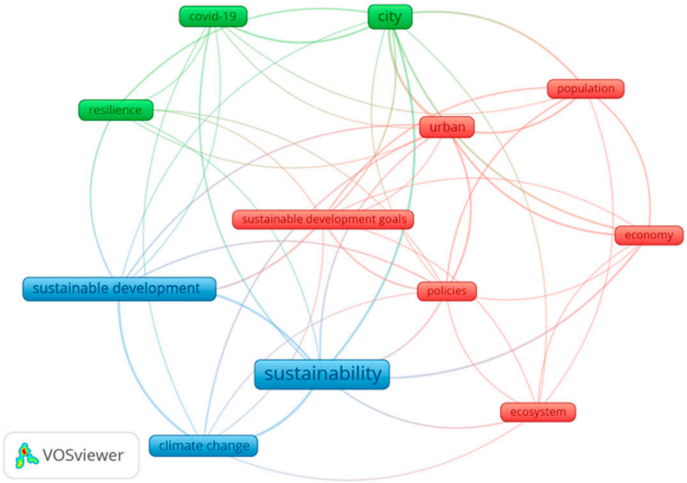

Figure 2. Keyword co-occurrence analysis.

Figure 2 shows the constitution of three clusters, which showed the following predominant behaviors: red connections refer to the term sustainable development goals, generating 5 co-occurrences; green connections refer to the term city making 12 co-occurrences; blue connections refer to the term sustainability generating 20 co-occurrences. The domain of the approach of the formulation was confirmed: city, sustainable development, resilience, urbanism, and sustainability.

In the discourse of sustainability and resilience in cities inside the COVID-19 scenario, as observed in Figure 2, the words with the highest appearance weight were urban, sustainable development, city, and sustainability. A perceived necessity of academics to connect the resilience concept with policies and ecosystems using sustainable development goals is evident.

Additionally, Figure 2 highlights that concepts such as urban, sustainable development, city, and sustainability are linked with the idea of resilience. All articles and documents with clear connections among these concepts, highlighting sustainability and resilience, depending on the approach found in the studies, referring those principally to the acquisition of different practices and policies. These results confirm that there is still a vision of the territory as an immovable and utilitarian structure leaving aside its conception as a complex system, without considering internal processes as adaptive cycles, thus moving away from implementing sustainable territorial planning.

3. COVID-19's Challenges for Sustainable and Resilient Cities

3.1. Emerging Cities

According to historical facts, the structure inside the territory enclosed political milestones and environmental crises. As a result, Latin America and the Caribbean (LAC) must face a new challenge due to the COVID-19 pandemic, revealing facts such as the deficit of essential equipment that guarantees the minimum of vital resources for inhabitants and the lack of integration among the different government actors that shows faults within urban planning, demonstrating how cities are still far from being resilient and sustainable [1].

In the last two decades, urban settlements and economic growth have become solid in medium-sized cities, creating a new expansion model, as well as tremendous challenges for them. For this reason, the Inter-American Development Bank described these areas as emerging cities, classifying those urban areas as intermediate based on the total amount of residents inside an environment of social stability and governability; additionally, they are growing economically and demographically above the national average [11].

According to the United Nations (2019), intermediate or emerging cities are growing at higher rates compared to a metropolis, showing that 75% of the world population lives in these, notably in rural areas or urban settlements of less than 500,000 inhabitants [12,13]. Borja states that "Urbanization without quality and the agglomeration/dispersion of populations causes unsustainable dynamics; the future of humanity matters" [14]; therefore, factors such as the occupation and inequality of the urban-rural, the degeneration of natural resources, including loss of biodiversity, high poverty rates, and vulnerability to natural phenomena consequently increase the urban footprint [15].

These problems produced a domino effect that troubles the efficient administration of the urban environment. This effect, coupled with the presence of COVID-19 in LAC, had an immediate impact because of the nearness of metropolitan areas towards the so-called emerging cities, generating a challenge for public health because of the percentage of the elderly vulnerable populations that live in these areas, with low-income wages as well as lack of access to health goods and services [3].

After lockdown and curfew periods, citizens of the metropolitan areas considered rural areas with less densification, as well as intermediate cities, as ideal spaces to protect themselves from the virus outbreak and enhance their mental health, creating an unexpected exodus without considering that all these areas could not meet their basic needs. Generating conflicts among a rural community that tries to maintain their environment virus-free, whereas metropolitan inhabitants try to seek a safe place [3].

To sum up, it applies to assess the risks involving these areas and the new criteria driving towards a design of sustainable and resilient cities [2]. This migration event in the actual scenario can be associated with the capital city and the impacts across the nearby areas located around the Bogotá city limits (Sabana de Bogotá), specifically related to Cajicá town. This place with a population of approximately 80,000 inhabitants can be found inside the region that shapes the inner-central area within Bogotá city limits; Figure 3 shows its strategic position in the national corridor, responsible for articulating this region of the country. The economy is supported by the manufacturing industry, transportation, commerce, agribusiness, and tourism.

Figure 3. Map of the central savanna (central region) [16].

3.2. The Importance of Natural Resources in the Pandemic

The population-growth phenomena had their first research in 1798 when Thomas Malthus published a study referring to the population principle; this opinion predicts that food production would not be at the same rate as the population growth rate, which results in a catastrophe [17]. Although this theory failed in its apocalyptic outcome, its approach regarding how complicated it will be to feed a larger population with existing resources is not too far from reality. According to the UN report on indicators of urban population growth, which concluded that by 2050, at least two-thirds of the world population will live in cities [18], in either case, the increase in population and consumption will increase the demand for natural resources, generating a tremendous impact on the ecosystem. Thus, in 2050, world agricultural production will increase by 60% compared to 2005–2007 production to ensure supplies for about 9700 million people [18].

This same case scenario affects water resources because of the increasing deficit rate; 40% of violent conflicts within the last 60 years are associated with the use of natural resources, placing climate change as one major threat that amplifies this scenario [19].

The COVID-19 pandemic scenario has caused enormous social and economic effects on both a local and global scale, where all restriction measures countries adapt to stop the infection rate, along with local issues, create a higher risk of impact on the availability of crucial natural resources that support and control this crisis. The COVID-19 pandemic and natural resources generate connections addressed from two factors: one given by the main actions to deal with the current crisis (for instance, the high demand and use of potable water for handwashing), as well as other factors produced by habits and lifestyles (e.g., the use of chemical substances for household cleaning) [4].

Some measures to control the crisis and minimize the infection rate are access and use of potable water for handwashing, face masks' mandatory use, plus power and electricity supplies for maintenance/use of intensive care units (ICU) in hospitals. Otherwise, the new lifestyle habits resulting from the quarantine measures demand high pressure on agricultural activities. All the above preserve nutritional well-being. In addition, an increased consumption rate of electricity in households and urban expansions because of the population departure from large metropolitan areas towards rural areas also occur (Figure 4). Despite this, there has also been a decrease in the use of fossil fuels as well as a decrease in atmospheric emissions [4].

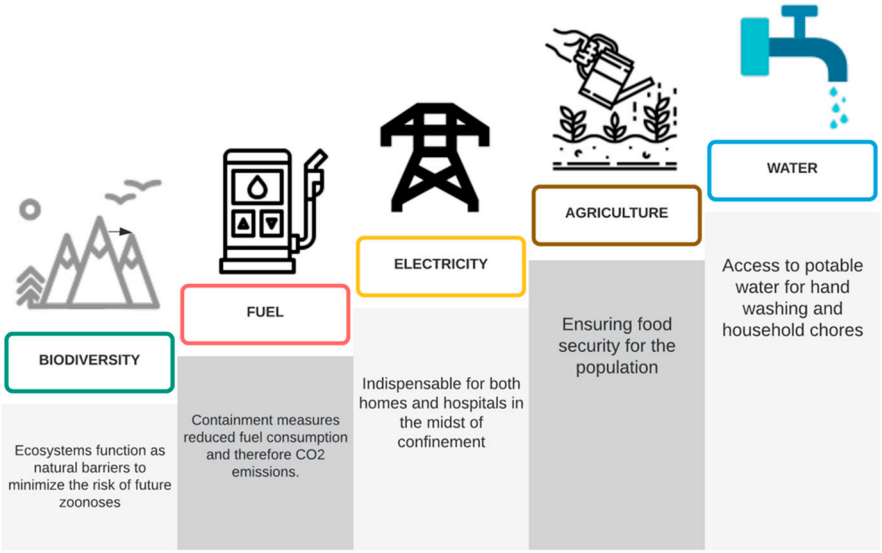

Figure 4. Role of natural resources [4].

Therefore, communities must have sufficient physical and administrative structures to supply basic needs and thus fulfill all care and immediate response measures enclosed on

the sanitary emergency because of the COVID-19 pandemic. The United Nations Economic Commission for Latin America and the Caribbean (ECLAC) considers the basic needs under the following categories: (i) to have home access assuring minimum standards of habitable conditions; (ii) to have access to vital services enclosed on an adequate sanitary level; (iii) to have sufficient literacy and economic capacity to reach minimum levels of consumption [20].

In the case of Colombia, the Food and Agriculture Organization of the United Nations (FAO) identified 213 municipalities in which 85% of their population has Unsatisfied Basic Needs (UBN); as a result, one in five town areas lacks quality life standards [21]. Nevertheless, in this case study, the UBN results in an optimal range of quality life standards [22]. Cajicá has a public utilities provider company (ESP, by the Spanish acronym) whose objective is to control, operate, and maintain domestic water supply, sewerage, and cleaning services according to the provisions enclosed in the Colombian legal framework. The ESP of Cajicá town reports that the percentage of potable water coverage is 95%, and the rate of solid waste collection coverage is 99%, being an outstanding service compared to other populations in the country.

According to pandemic measures (lockdowns/curfew), there has been an increase in the consumption of potable water and the production of solid waste, forcing the ESP to extend measures regarding the separation of the solid waste directly from the source, as well as the efficient use of potable water. In summary, by 2019, Cajicá produced 1600 tons of waste per month (as shown in Figure 5); this number increased by 20% in 2020, and by February 2021, it exceeded by 5% the 2019 average value. These phenomena could have occurred due to the modification of consumption habits such as food preparation and single-use items such as facemasks and plastics.

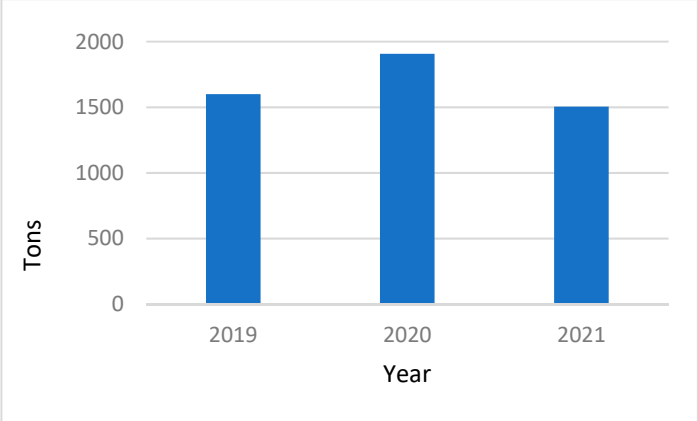

Figure 5. Solid waste production 2019–2021 (Average tons/month).

Likewise, water consumption had similar behavior, as shown in Figure 6, showing that in 2020 there was an increase of 13.17% compared to the previous year, while in 2021, February had the average consumption of the year 2020 exceeded by 22.15%. A potential reason for this pattern is related to domestic activities, such as the use of showers and toilets.

In terms of strategic location, the town of Cajicá became a housing alternative for those looking for safety against the virus in rural or low-density populated areas, leading to a 9% growth in building permits, classifying the town as the "the golden mile".

The influence over the ecosystem may harm the ecological integrity and biodiversity, affecting the structure and property, not to mention all terrestrial and aquatic biogeochemical cycles, which leads to the necessity for the conservation of biodiversity and the ecosystem services. It is necessary to take urgent measures to protect human health against the virus (directly or indirectly). In addition, people settle in high agricultural production areas, which may place elements such as food security at risk [23].

It is a noteworthy fact that even when households have access to water utilities, most of the ESP does not offer a full-time service, which affects rural and peri-urban areas in specific, reflecting the lack of necessary infrastructure to guarantee the service. All of this makes it hard to comply with the Sustainable Development Goals (SDG) especially No. 11 on sustainable cities and communities.

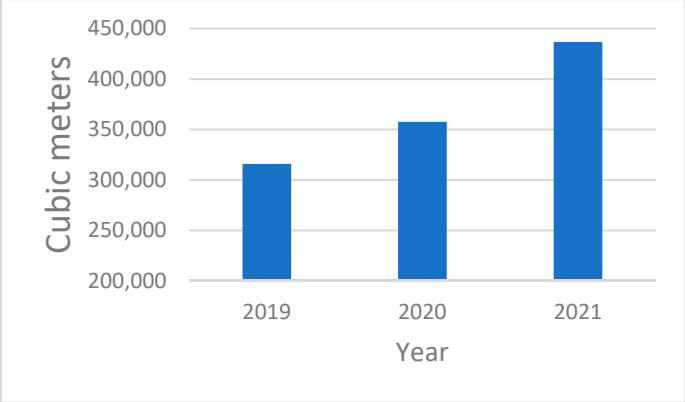

Figure 6. Drinking water consumption 2019–2021 (average m^3/month).

3.3. Sustainability in Times of Pandemic

Environmental sustainability takes center stage from the Brundtland Report, prepared by different nations in 1987 for the UN. The document, originally called our Common Future, confronts the position of current economic development in contrast to environmental sustainability [24], addressing the concern regarding global warming and its devastating consequences, plus the degradation of natural resources and loss of biodiversity, high rates of poverty, and vulnerability to natural phenomena. All the above still demands a quick course of action.

The concept of sustainable development is then adapted, allowing us to meet the actual needs without jeopardizing the ability of future generations to fulfill their needs [25]. Therefore, the continuous examination for a territorial approach makes notable the meaning of bioregion, where the maintenance of essential ecological processes, life-support systems, and the sustainable use of species according to their carrying capacity is absolute [26].

The human being is no longer the center, which forces Urban Planning to reevaluate the territorial planning as an instrument that harmonizes ecosystem dynamics and allows the assessment of its limits to guarantee long-term planning.

The idea of a bioregion originated in 1996 from the studies of William Rees and Mathis Wackernagel, which tried to base an ecological language that would allow for quantifying the sustainability of the lifestyles of humanity and its direct relationship along with the capacity to renew ecosystems [27]. Everything aforementioned uses the concepts of human carrying capacity and natural resources to develop an assessment framework on each city's ecological footprint.

The prevailing economic assumptions regarding urbanization and the sustainability of cities dictate that the situation must be revised with aims of global ecological change [28], making way for models based on a green economy or sustainable economy [29].

The UN Program UNEP launched the Green Economy Initiative (GEI) in 2008, where they state: the green economy in not a substitute for sustainable development; this is conceived as the results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities [30] strengthens the circular economy model.

In this way, it opens a field to the fulfillment proposed in the 2030 Agenda of the Sustainable Development Goals for SDG 11: Sustainable Cities and Communities, which promotes the responsible use of resources and the environment and the improvement of the well-being of the citizens. The above, based on the general principles of governance,

empowerment, education, health, and mobility, help define the objectives and strategies for sustainable development.

However, it is important to highlight that each territory is not only the result of its history, but must also be resilient in the face of the situations it currently faces, such as the pandemic, which has conditioned the future of emerging cities and the way in which these were understood, which leads us to reflect on, and not overlook that although globalization allowed the opening of great benefits, not all populations have the same capacity to face the changes that COVID-19 has raised to date, demanding a rapid response to health emergencies. Thus, it is of vital importance to strengthen the resilience of territories through practices that reduce the subjectivity of public politics and consolidate reflective governance and the implementation of new infrastructure, generating the possibility of economic development in terms of sustainable development [29].

Cajicá Mayor's office has been promoting for about 10 years the culture of separation and use of solid waste among citizens; as a result, in 2017, the town was awarded by the UN as one of the five towns leading waste and contamination control actions in the world [31]. This culture allowed Cajicá to withstand the increasing volume of solid wastes in a resilient way. However, the measure was not enough since, by 2020, the average volume of reused solid waste reached just 23% across the municipality.

In addition, economic reactivation measures have incited mixed feelings within the municipality; this town being a place for tourists, the number of visitors from Bogotá increased significantly, generating a considerable volume of solid waste, as well as producing discomfort in the citizens due to crowds, traffic jams, and the fear of provoking new infection cases, a case scenario that the town is not prepared to handle. In summary, there is still a long way to go towards the use and implementation of the circular economy

To summarize, connections between rural and urban areas build up interest; both areas form a complex symbiotic network where goods and services are connected. In addition, these play a significant role in the perspective of territory as promoters of sustainable management. Therefore, this network could be associated with the definition of urban ecosystems that indicates that there is a symbiosis between natural and spatial scenarios, assuming that systems must remain in balance, along with the constant need for permanent flows of energy, matter, and information, throughout a complex holistic approach, where the agglomerations have a rhizomatic behavior [32]. The linearity of exposure is not substantial because, in the rhizome, some aspects form a connection where dynamics showing its singularity are born, developing under its principles of connection and heterogeneity, multiplicity, assigning rupture, cartography, and decalcomania [33].

3.4. Urban Resilience

Resilient cities are replacing traditional ideas of urbanism and have become a key strategy for sustainable development, determining how to improve the capacity of the urban system to cope with uncertain factors and improve the predictability and orientation of urban planning, which has gradually become a popular topic in the field of urban planners, as announced in Kobe, Hyogo, Japan, at the World Conference on Disaster Reduction, where special emphasis was placed on the fact that increasing the resilience of nations and communities to natural disasters, leads to a reduction in the loss of human life and social, economic, and environmental assets [34,35].

Similarly, the UN-Habitat report defines urban resilience as the capacity of urban systems to recover rapidly from any event caused by disruptive phenomena of natural or human origin. Its purpose is to prevent an event from evolving into a disaster [36]. Terms such as threat, exposure, and vulnerability are frequently used for risk management, understood as a characteristic of the community that makes it susceptible to being damaged by a threat [37]. However, such risk assessment involves the analysis of disruptive agents that can cause changes to a system in a positive or negative way.

Therefore, cities are seen as connecting elements between urban processes that allow increasing resilience as a result of their interactions [38], from which later "new properties

emerge and characterize the city as a collective entity" [39]. This ensures that relationships are the key factor in understanding resilience. For example, once the lockdown stage is over, it has been possible to show how some of these settings, especially rural ones and public spaces, have been valued as necessary areas for safe social contact; it is for this reason that it is imperative to identify the risks to which these places are exposed and to rewrite the main criteria for the design of a sustainable and resilient city [2].

The city of Cajicá, similar to other regions of the country, had a substantial collapse in its economy as a result of the lockdown and social distancing measures that began in March 2020, which forced the administrative authorities to create action plans that allowed for compliance with the isolation measures for four months. Once the measure was lifted and with the obligation to adapt to the "new normal" under the guidelines and security protocols, the economic uncertainty continued. Without an evident capacity to face it, the municipality carried out initiatives, with the support of the municipal council, related to tax relief for entrepreneurs and contractors, temporary subsidies for public services for the most vulnerable populations, and economic incentives for the reactivation of small and medium-sized companies.

4. Discussion

4.1. Emerging Cities

The new population and economic growth patterns at the urban level occur principally in cities classified as intermediate, creating expansion and agglomeration phenomena. These urban areas are classified as intermediate, involving populations within a social stability and governance context, according to the provisions of the IDB [13,40]. In addition, those towns become especially important because of the transformation into stationary or temporary towns, which tends to be notably attractive for those who seek a nearby rural ambiance as well as an improvement in their quality of life, even when this implies long drives to job sites inside metropolitan cities. However, these emerging cities struggle to respond to the high housing demand, guaranteeing public services while reducing rural areas.

Therefore, this indicates a socioenvironmental challenge for cities since their growth rates are higher than the values obtained from the metropolitan cities, home to 75% of the world population, being these rural areas or urban settlements. It estimates that they consume between 60% and 80% of energy, produce 80% of the global GDP, and this being a stationary town, around 7% of greenhouse gases are emitted [41]. This growth occurs in a disorganized way, demonstrating poor-quality urbanization and generating unsustainable dynamics that lead to further inequity gaps.

The current scenario caused by the pandemic produces notable displacements of people from metropolitan areas to these intermediate cities, not only for housing but also because those are ideal spaces to protect themselves from the virus outbreak and improve their mental health, playing a remarkable role in the development and territorial cohesion compared to metropolitan cities [3,42]. In effect, this would be an improvement for economic reactivation; however, this idea loses importance rapidly due to traffic jams, overcrowding, inequity gaps, and the transformation in the original population basis, producing fragmentation and a change in lifestyles.

4.2. The Importance of Natural Resources in the Pandemic

Natural resources are essential components within human survival; the lack of agricultural resources, fertile lands, water, and vegetation have generated violent scenarios and conflicts during the last 60 years, and climate change issues further complicate this scenario [43]. Additionally, in times of COVID-19, the loss of confidence in food safety measures established by government entities, because of the upcoming politics that these may have, increases non-conformity and affects governance; on the other hand, the lack of water and land can influence variations in food prices as well as access and quality.

It is relevant to understand in-depth the concept of carrying capacity, understood as "Communities/Species that can reside indefinitely in a specific habitat without producing permanent damage to the ecosystem on which they depend." For human beings, this is the maximum consumption of resources and waste creation that a region can sustain indefinitely without altering the ecosystem functions. With this overview, we must reflect on the tremendous impact we, as human beings, provoke on the urban footprint as a product of the excessive use of resources to mitigate the pandemic outbreak effects, even though cities nurture their resources and productivity from places located on the outskirts and their political limits. As a result, the use and primary consumption of food, fuel, waste processing, and water use, among others, depend directly on inhabitants' lifestyles [28]. For this reason, it is necessary to promote a proactive citizen culture in environmental matters, encouraging awareness, attitude, and interest in caring for the environment, including spaces that allow discussing and proposing alternatives to provide solutions to environmental challenges.

4.3. Sustainability in Times of Pandemic

The Brundtland Summit established the concept of sustainable development as the one that meets the needs of present generations without compromising the capacity of those in future scenarios [25,44], outlining two ideas: the first in the environmental footprint, and the second in the capacity load assigned to a time variable. The current conditions we have as a result of the COVID-19 pandemic are compelling us to reinforce the biocentric vision where the human being is no longer the center, which forces urban planners to reevaluate the territorial planning as an instrument that harmonizes with the dynamics of an ecosystem and allows evaluating limits that guarantee long-term planning.

Whereas regions fulfill urban building processes, the role of cities gains importance in the sustainability results since the urban footprint is linked to the paradigm of sustainable development, moving forward the science of sustainability. The urban form determines the variation of the ecological footprint inside the territory, based on changes regarding the land use acts [45,46]; therefore, the study of this variation will allow an analysis of sustainable management tasks within cities that will provide an accurate understanding of the demands on environmental services that these inflict on a territory.

One of the effects of the COVID-19 pandemic was to test the performance of the elements inside supply chains as well as global demands, which resulted in a shocking outcome. In an effort to isolate cases and limit the virus's transmission rate, countries implemented severe measures such as national and border closures, demonstrating once again their dependence on external actors and the lack of self-sufficiency. Then, an approach regarding the appropriation of circular economy models and how these could satisfy economic needs, separating economic growth from resource consumption and waste management, was considered in this study [47]. As a result, government entities can find in this model an opportunity for green economic reactivation, where the fundamental challenge aims the transformation of the traditional linear economy towards a model of industrial practices that allow the user to reuse or recycle a product, increasing its lifespan period and consequently generating a lower amount of land waste disposal found in dumps.

Tools such as environmental footprints and circular economy models can provide a guideline basis for public policies to contain the pressures placed on ecosystems and promote sustainable development of cities. These are crucial elements for the compliance with the Habitat Agenda, and the thoughts coming from the circular economy will also allow us to focus on recognizing innovations in favor of the general well-being of the population [45,47]. In this manner, an approach to SDG 11: "Sustainable Cities and Communities" is possible with local and regional governance and associated socioeconomic transformations. Since it is useless to establish public policies if we do not carry out training processes inside the community, all the above are regarding a settling-territory vision.

4.4. Urban Resilience

Urban resilience is usually associated with natural disasters and their alterations in intra-urban processes, considering it as a complex network of relationships between its internal components and external networks [48], thus functioning as a gear in which each component of its extension it fulfills a function to the extent that it harmonizes with the network. This function is magnified with the common goal of making this complex system work effectively with a multilevel approach at the local and regional level. Therefore, the city is conceived as a connecting element between inter-urban and intra-urban processes that allows for increasing resilience as a result of their interactions.

So, in the uncertainty resulting from the pandemic, our capacity for recovery and adaptation becomes urgent; resilience is the result of a process by which organizations work to anticipate and respond to continuous external threats [7,8]. It is not about leaving behind the principles of order and logic, but about integrating them into a more complete scheme, thus allowing for adaptive agents to emerge, exhibiting more complex structures and behaviors and allowing for the passage to evolutionary resilience.

On the other hand, emerging cities have had to face situations related to security, economic and public health crises, and political and social tensions unleashing problems such as the hoarding of basic supplies, the spread of fear, generating a latent risk for the instability of the cities. It will take a long time and much effort to restore the trust of citizens [49], and for this reason, characteristics of cities that were not considered important at first emerge strongly. It is thus necessary to envision the city as a collective entity, which includes the perception of the actors involved and strengthens social cohesion. Additionally, the design of protocols that not only focus on natural disasters, but also take into account scenarios such as pandemics, for which cities were clearly not prepared, is imperative.

Even so, the current situation shows that sustainability can have a positive and lasting impact on resilience, building "resilient systems that promote radical innovation in economic policy, corporate strategy and in the social sphere, systems and public governance", and it should be proposed as a general policy flag and improvement of social innovation [48]. In other words, sustainability and resilience are two concepts that will allow for a strategic functionality in urban planning, since while the first prioritizes results, the second analyzes processes.

5. Conclusions

Emerging cities should be the new matter of study for urban planners, bearing in mind that these will be the ones that receive a new departure of people interested in improving their quality of life, becoming in a notable dependency for regional connectivity. Moreover, there is still time to plan its growth and ensure urban and environmental sustainability for all inhabitants.

A community's behavior based on the principle of shared responsibility for environmental sustainability in cities is fundamental because it is necessary to promote a proactive citizen culture in ecological topics, encouraging awareness, attitude, and interest in caring for the environment; therefore, spaces are required that allow discussing and proposing alternatives to provide solutions to environmental challenges.

Tools such as environmental footprints, urban footprints, and circular economy models can provide a baseline for public policies that promote sustainable development of cities, generating an approach to SDG 11: "Sustainable Cities and Communities" together with a settling-territory vision.

Sustainability can contribute a positive and lasting impact on resilience, bringing biocentric thinking and transforming the traditional vision of urbanism; in this case, sustainability prioritizes results while resilience analyzes processes. These are two concepts that will allow for a strategic functionality within urban planning. It is relevant to consider that urban studies should focus on understanding the natural dynamics of the territory, conceiving it as a complex adaptive system that requires stages of transformation to achieve evolutionary resilience, enclosed in nature-based solutions.

The case study showed that Cajica is a typical emerging town in which it is possible to visualize the consequences of the pandemic and the effects of deficient administrative directives regarding urban planning. However, the crises should also mark an opportunity to consider the COVID-19 pandemic as a pause to rethink the planning of cities as main contributors within the ecological crisis and, in this way, propitiate an encounter between the natural and the human to fulfill the goal of implementing sustainability and resilience to guard the wellbeing of present and future generations.

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