Urban sustainability in Latin America. Challenges and perspectives

Sustentabilidad urbana en América Latina. Retos y perspectivas

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ABSTRACT: The article examines the evolution of ideas and some good practices concerning urban sustainability as a basis to explore possible futures for city planning in Latin America, based on the current situation on the continent. The paper is structured in three steps, starting with the theoretical framework of concepts and principles as well as their evolution. Based on that, the current situation in Latin American cities is characterized, in order to undertake the third step o proposing possible solutions, taking into account problems and potentialities, as well as good practices in this and other continents. Results and discussions are focused on ways to be followed in order to contribute to the development of more sustainable cities in the region.

KEYWORDS: sustainable development, Latin America, urbanism

RESUMEN. En el artículo de examina la evolución de las ideas y algunas buenas prácticas en relación con la sustentabilidad urbana como base para explorar posibles futuros para el planeamiento de ciudades en América Latina, a partir de la situación actual en el continente. El trabajo se estructura en tres etapas, comenzando con el marco teórico de conceptos y principios, así como su evolución. Sobre esa base, se caracteriza la presente situación en las ciudades de América Latina, teniendo en cuenta problemas y potencialidades, así como buenas prácticas en este y otros continentes. Los resultados y discusión se concentran en las vías a seguir para contribuir al desarrollo de ciudades más sustentables en la región.

PALABRAS CLAVE: desarrollo sustentable, América Latina, urbanismo

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Introduction

In several articles published a decade ago, the author talked about the kind of city that ensure progress towards a more sustainable cities in the Latin American Region, according to the predominant conditions at that time. Inevitably, there have been significant changes in the intervening years.

Nonetheless, the earlier papers provide a starting point to examine the evolution of ideas and the best practices useful as references, in order to explore possible futures for the cities in the continent. The objective of this article is to reflect about some theoretical knowledge and practical experiences at a global scale from a Latin American perspective

Materials and methods

Theoretical and empirical methods have been used. This includes theoretical research on sustainability carried out by the author during the last twenty years as well as empirical evidence obtained from some European countries (mainly Sweden, Germany, UK, Switzerland, Belgium, Italy, Spain and Greece). This have been combined with direct experience achieved from some Latin American countries (such as Guatemala, Panama, Colombia, Venezuela, Ecuador, Peru, Bolivia, Chile, Argentina and Brazil), and the particular Cuban experience, the author's own country.

Despite it is very difficult, the paper intends to preserve a holistic approach of sustainability and several inter-connected variables are considered. However, the approach focuses on integrated spatial planning and land use.

Results and discussion

Theoretical framework: Sustainability, Concept evolution, Dimensions

More than a quarter of a century has passed since the new paradigm about Sustainable Development was formulated [1], as a "without alternative answer" to the survival of humanity caused by the ecological crisis. This is why its origin was eminently environmental, despite its further evolution towards the three basic recognized dimensions: environmental, economic and social. Sustainable Development should be environmentally healthy, economically viable and socially fear, though the "Río + 20" Conference [2], recognized the difficulties that still persist in order to integrate these three dimensions.

A lot has been written and published about this issue, which terminology is today used in a general way in almost every field, despite unfortunately, not always it is used based on a clear understanding about their implicit integrality and holistic vision.

A confluence about the main issues and principles related to Sustainable Development has evolved at the international level during the last two decades. In the final document of the "United Nations Conference about Sustainable Development. Río + 20" [2], it is stated that the process should be inclusive, people oriented, and so, focused on the human being. Many former agreements were ratified in this occasion, among them, "The Millennium Goals".

However, the world situation is today more critical than at the end of the second millennium, departing from the acceptance of the climate change as a reality which effects should be mitigated and reverted, but adaptation will be needed in the inexorable future. The thematic spheres established

[1] ONU. Informe Brundlant, Nueva York, 1987.

in "Río + 20" have been: poverty eradication; food security, nutrition and sustainable agriculture; water and sanitation; energy; turism, transportation and sustainable human settlements [2].

Developing Countries

Many of the today considered developed countries achieved this status by taking advantage of the burden imposed on their colonies first and later neo-colonies, from where they got their row materials and cheap labour. Even today they transfer their polluting industries in order to take advantage of the cheap labour hand and repatriate the profits generated by these productions. Despite this exploitation, the so called developing countries have been left with an un-payable external debt with respect to those on whom they continue depending in this time of global neoliberalism.

In this way, the rich countries approximate to the sustainability paradigm as an alternative solution, by taken conscious decisions, while the poor regions and specially the low income sectors which basic problems (food, health, job, and housing) are not solved, are forced to assume surviving patterns without alternative. At the same time, they dream about the occidental consumerist development model [3]. In such conditions, adding the lack of resources and access to clean technologies, it is very difficult to consciously achieve the way of life demanded by sustainable development and its three level of required changes: technical, social and ethics [4]. The ethical challenge is particularly great.

In the article 19 of the Final Document produced by the United Nations Conference "Río + 20" [2], it is recognized that achievements during the last 20 years have been unequal with respect to sustainable development and poverty eradication, and that it is necessary to advance about eliminating the differences between developed and developing countries.

Principles for Urban Sustainability

A world population over 9 000 million is projected to 2050, two third of which is estimated to be living in cities. This reinforces the need to transit towards sustainable cities and to reduce poverty, hungry and avoidable diseases that today characterize urban development in poor countries [2]. It is then important to reaffirm the goal of the Habitat Agenda approved in Istanbul about the necessity to develop sustainable human settlements in an urbanizing world [5], from recognizing the unavoidable and irreversible character of the urbanization process, even when the urban growing indexes achieved during the last 15 years have been less than those previously estimated.

Criteria with respect to urban sustainability have been changing from the initial ideal and bucolic ones towards the certainty that the sustainable city should be compact, taking advantage of available land [6]. During the last 20 years, numerous systems to evaluate sustainability at urban and architectural scale as well as to certify projects and works with commercial approaches have been developed, in which attention is focused almost exclusively on the environmental dimension of sustainability: land use, ecology, transportation, water, materials, resources, energy and indoor quality [7].

Some important international goals are to achieve neutral cities [8], which some European ones are intending to achieve by 2050 or even before; zero or almost zero buildings proposed in 2006 by the movement "Architecture 2030" leaded by Edward Mazria [9], and in the objectives 20-20-20 the European countries have proposed to reduce 20% of energy consumption, 20% of emissions as well as to generate 20% of the energy by renewable sources [10].

[2] NACIONES UNIDAS. Río + 20. Conferencia de las Naciones Unidas sobre Desarrollo Sostenible. Informe A/ CONF.216/L.1m Río de Janeiro, 2012.

[3] GONZÁLEZ COURET, D. "Sustainability in Developing and Developed Countries". Architecture as Politics. The Role of Design and Planning for Peace and Sustainable Development, ARC. PEACE2002, Stokholm, pp. 40 – 43, 2000.

[4] KENEDY, M. "The share of architects and planners in solving ecological problems". What Architects can do for Peace and Development. Proceeding from the Prague International Asembly of Architects, Planners and Designers, Stokholm, pp. 21 – 32, 1989.

[5] UN-HABITAT. Habitat Agenda. Habitat II. Istanbul. 1996

[6] GONZÁLEZ COURET, Dania: "¿Puede una ciudad ser sustentable?". Energía y Tú, (10),pp. 17 – 20., La Habana, 2000.

[7] GONZÁLEZ, N, RODRÍGUEZ, E., LLOVET, M., y GONZÁLEZ, D.: "Por una Universidad de las Ciencias Informáticas más sustentable". Arquitectura y Urbanismo. La Habana, Facultad de Arquitectura, ISPJAE, 2014, vol. XXV, núm. 3, p. 104 - 113.

[8] KIMMAN, J.: "The Road towards Energy Neutral Cities. World Renewable Energy Congress 2011 –Linköping University, 2011.

[9] MAZRIA, E.: Clean Energy: The Future is now. World Renewable Energy Forum, American Solar Energy Society, Denver, 2012.

[10] MONTES DE OCA, M. "Edificios de energía casi nula, Una realidad inminente". Curso de Arquitectura Sostenible, P. Romera García (Ed.), Las Palmas de Gran Canarias, pp. 66 – 71, 2011.

However, it has also been recognized that general indicators elaborated by developed countries to measure sustainability have to be adjusted to the particularities of developing regions. In this respect, it is significant that African countries in which poverty indicators are higher than the in Latin American cases, have joined about this objective. This is reflected in the Nairobi Declaration about Green Buildings for the Conference related to the system for the evaluation of the green buildings in Africa [11]. The document underline the importance of taking into account the social and cultural specificities of Africa, particularly, the traditional practices that have proved being environmentally convenient, attending, at the same time, the necessities of people in the base of the social and economic pyramid that requires accessible housing as well as simple and economic solutions.

Also in India the Ministry of New and Renewable Energies has created a National System to Evaluate Green Buildings (GRIHA) [12], which adopted the "R" philosophy (reducing, reusing, recycling). This could reveals a clear intention to reject foreign influences and to look for endogenous solutions based on their own potentialities.

Despite goals and objectives declared by developed countries being focused on the environmental aspects of sustainability giving priority to the energy problem, the final document from Río + 20" offers a wider concept of sustainable cities and human settlements, better to the real global situation, particularly with respect to developing Latin American countries. These include: [2] integral planning with holistic approach, favoring access to housing and services without displacing people from their places of origin, and poverty eradication (urban and rural), preserving heritage and revitalizing urban centers at the same time; inclusive housing and services safe and healthy for all, including the provision of secure green spaces, water and sanitation; participation to strengthen the role of municipal governments in revitalizing urban centres and promoting building energy efficiency, as well as guaranteeing sustainable transportation and mixed land use; and favoring association between cities to achieve the proposed goals. The recently approved Goals for Sustainable Development, the agreements from the Convention of Climate Change, and the New Global Urban Agenda for Habitat III to be held in Quito 2016, confirm that.

Diagnosis. Urban Planning in Latin American Cities

With 80% of people living in cities, Latin America and The Caribbean is considered the more urbanized region globally. However, according to the report about "State of cities in Latin America and The Caribe 2012" [13], despite positive qualitative changes, urban growing models promoted up to now are highly unsustainable, since the cities of the region continue being the more unequitable ones on the planet, "duals" and segregated (socially and spatially) (Figure 1). Despite the reduction in the proportion of population living in shanty towns during the last two decades, the absolute number has increased to 111 millions people, and despite a stop to large scale invasions and forced expulsions, housing policies have not provide an answer to the necessities of the poorest sectors, nor has the integration of precarious settlements to the city been achieved.

The offer of public spaces isn't equitable; participative improvement of settlements doesn't guarantee inter-urban connectivity and integration to the wider urban tissue, and a tendency to create closed neighborhoods and condominiums exists (Figure 2). Good innovations as revitalizing abandoned

[11] UN-HABITAT. Conference on Promoting Green Building Rating in Africa, Nairobi, 2010.

[12] MINISTRY OF NEW AND RENEWABLE ENERGY. Green Rating for Integrated Habitat Assessment. The National Rating System for Green Buildings. The Little Book of GRIHA rating, New Delhi, s/f.

[13] ONU-HÁBITAT. Estado de las ciudades de América Latina y El Caribe 2012. Rumbo a una nueva transición urbana, Nairobi, 2012.

Figure 1: Dual city. Bogotá, Colombia. (Photo of the author, 2007)

Figure 2: Closed urbanization. Santa Cruz de La Sierra, Bolivia. (Photo of the author, 2012).

central zones, the creation of cycle ways and green spaces are not general trends. More frequent is the growing of low quality urbanizations, which social spaces are those dedicated to consumption.

Despite deceleration of demographic growing, cities are expanding (physically) at a rate that could be two or three times higher than the increment in population [13], which provokes reduction in demographic density and dispersion of the cities, with the corresponding increment in the capital and maintenance costs of infrastructure, as well as losing the economic advantages of agglomeration. Urban growth, dispersal, low densities and the lack of services increase the pressure on urban transportation system, which are unfortunately mainly based on automobiles instead of public transportation means. According to the UN Habitat report [13], the number of individual vehicles has been more than doubled in 10 years and many cities suffer from high levels of congestion (Figure 3).

Proposals

From the international experience related to urban sustainability and the particular situation in Latin America and The Caribe today, which ways should be followed to contribute to the development of more sustainable cities?

The right to the city promoted during the last decades, particularly in Brazil, Ecuador and Mexico [14] can't be simply reduced to the right to the informal city, built by people, generally without any other support or planning [15]. A sustainable city can't be spontaneous; on the contrary, it requires well integrated and participative planning that guarantees its progressive transformation promoting social integration as essential requirement for sustainability, contrary to segregation and exclusion predominant today in most Latin American cities.

According to Silva [16], the Chilean government has stimulated social integration by diverse ways, including the priority given to urban projects promoting it to avoid homogenous concentrations of poverty in the periphery of the cities [17].

There are, at the same time, numerous experiences driven to promote people participation in decision making on planning and urban improvement, as well as respect to the needed technical support to guarantee the quality of the social production of habitat. A significant experience is illustrated by the Program of the Architects of the Community initiated in Cuba during the 90's, which has been extended to diverse countries in the regions.

Another interesting experience has been the "Workshops for the Integral Development of the Community", created during the 80's in the historically poorest and then, deteriorated neighborhoods of Havana city, with the aim to help and to orientate people in their efforts to improve habitat quality. The Urban Observatories created in some universities in the region could be considered as similar experiences.

An essential principle of urban sustainability is to take advantage of the urban land as an almost non-renewable resource. However, Latin American cities have grown much more in extension tan in population, and this trend cannot be reversed while the management of auto construction of popular housing continue being an individual process. In order to improve the land use, increase density and reduce urban growth, it would be necessary a transit towards more collective management models as Cuban "microbrigades" were, (Figure 4) or as housing cooperatives in diverse countries in the region, especially Uruguay [15].

[14] FLORIAN, A., y MANRIQUE, D. "La situación de la vivienda popular en Colombia". El camino posible. Producción social del hábitat en América Latina, Editorial Trilce, Montevideo, pp. 167 – 186, 2011.

[15] NAHOUM, B. "Cooperativas de Ayuda Mutua: la autoproducción organizada y solidaria". El camino posible. Producción social del hábitat en América Latina, Editorial Trilce, Montevideo, pp. 77 - 92, 2011.

[16] SILVA, J. "La política habitacional de Chile". Seminario Taller La Producción Social de la Vivienda y el Hábitat en las Políticas Públicas. UMS, La Paz, 2003.

[17] SUGRANYES, A., La reconstrucción social del subsidio habitacional. El camino posible. Producción social del hábitat en América Latina, Editorial Trilce, Montevideo, pp. 45 - 58, 2011.

Figure 3: Urban traffic congestion. Punto Fijo, Venezuela. (Photo of the author, 2008).

Figure 4: Housing building built by "microbrigadas" in Las Arboledas, Havana. (Photo of the author, 2000)

Indicators of density and land use more appropriate in each place constitute a balance between two opposite variables: the convenience putting urban land to efficient use and the necessity to achieve an appropriate indoor environment by natural means. During the last decade, some research works focused on establishing appropriate values for these indicators were carried out in Havana [18].

Also in recent research works the feasibility and advantages of progressive housing buildings in central urban areas, combining the action of building enterprises in the execution of the support or the shell have been demonstrated, and people have completed and transformed their housing according to their necessities and possibilities (Figure 5). This allows a reduction in the initial investment higher densities, keeping at the same time the quality of the urban environment throughout the evolutionary steps of the process [19].

These solutions additionally favor the principle of social integration, making it possible to insert progressive housing buildings and then lower initial cost housing, in consolidated urban zones, when policies stimulate mechanisms to compensate the land value in these areas, such as subsidize to buy second hand housing, or the work carried out by the Network of Buildings recovered by auto management in Chile, in order to take advantage of unused but habitable spaces as a consequence of the land speculation, and with the aim to keep the poor people inside the city [17] .

But this phenomena is also related to another principle for urban sustainability. This is referred to built heritage conservation as an element of identity and social cohesion, besides the economic and environmental advantages. However, a very sustainable heritage conservation should bring about a positive social result, for it is necessary to avoid the displacement of lower income people form their historic places of residence in the deteriorated centers, and to keep an authentic social environment in the renewed areas. Historic centers as Quito and Havana, (Figure 6), both recognized as World Heritage Sites, show that it is possible to integrally rehabilitate these centers, keeping the social and economic diversity as well as the financial viability [13].

Key elements for urban sustainability are also services and public spaces that promote socialization and identity. Investment in improving public spaces is a way to maximize a positive impact on life quality, investing minimum financial resources, especially when it is undertaken as a participative process that favor people identity and their appropriation of urban space. Recently, too much has been said about dynamic projects and creative industries as new sources of resources at urban scale [20] without reference to their impact on the social aspects of the urban environment and quality of life.

Associated to public spaces is the urban green that in a very sustainable approach should offer multiple benefits, from the reduction to the "heat island effect" up to the generation of edible landscapes. Food production in the city on a decentralized way reports important benefits. Urban agriculture has been an alternative widely developed in Cuba since the 90's, but as a surviving imperative more than as an option for a healthier alimentation. However, still today a movement of popular cultivation in yards, gardens and roof subsists, applying techniques of organic agriculture and permaculture, which constitutes an important reference at international level. (Figure 7).

[18] GONZÁLEZ COURET, D. Aprovechamiento del suelo y ambiente interior como variables contrapuestas para la sustentabilidad de la vivienda urbana, CUJAE, La Habana, 2008.

[19] GELABERT ABREU, D. Vivienda progresiva como solución alternativa para la ciudad de La Habana, Universidad de Sevilla, Sevilla, 2015.

[20] REY, G. Centro Habana. Un futuro sustentable, OHCH, La Habana, 2010.

Figure 5: Project of a progressive housing building in Centro Habana. Student: Anelys Lay, 2010.

Figure 6: Social Integration in Plaza Vieja, Havana Historic Centre. (Photo of the author, 2009)

Figure 7: Urban agriculture in a green roof. El Canal neighborhood, Havana. (Photo of the author, 2011)

Urban transportation is one of the higher energy consumers and one of the main responsible for the climate change. This problem departs from urban planning. In a city structured by unities with a high degree of autonomy, pendulum movements and daily distances are reduced as well as the dependency of transportation means. In any case, public transportation is the sustainable option opposite to private cars. The future of the region needs to move towards the quick transportation systems as those used in some Colombian cities. (Figure 8).

Figure 8: Transmilenio station in Bogotá. (Photo of the author, 2011)

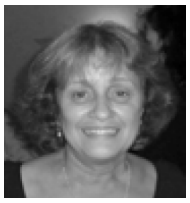
Conclusions and possible future

Despite advances achieved in Latin America today, there is still a lot to be done to achieve a more equitable distribution of the benefits obtained from the exploitation of available natural resources, and with reference to their more efficient use in order to transit towards really more sustainable cities.

However, a better future is surely possible if governments play the corresponding role as a regulator to balance the interests of the people and the market, and promote ways of endogenous development, decentralized and participative, to strengthen feelings of appropriation and identity among people and make possible the principles declared in Río + 20, as well as the Goals for Sustainable Development.

Urban growing models should be changed to promote a better use of land, by more compact and socially integrated solutions. Cities should be planned in a participative way for a progressive development departing from autonomous units where people could walk or bike and public transportation have been improved. Built heritage conservation is essential for identity and legacy and also for sustainability, as well as greening urban areas.

Good practices in the region show those proposals are feasible if they are well planned and managed.



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