DOI: 10.5902/19834659 35207

WHAT IS THE ROLE OF INDICATORS AS A GOVERNANCE TOOL TO HELP CITIES BECOME MORE SUSTAINABLE?

Qual o papel dos indicadores como instrumento de governança para auxiliar as cidades a se tornarem mais sustentáveis?

Submission: 15/10/2018
Accept: 14/06/2019

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ABSTRACT

Cities need continual improvements as they grow, and the government needs to create the means to meet this demand. To assist in sustainable development for communities, ISO 37120 was created to focus on cities, with indicators for urban services and quality of life. This article seeks to understand if Indicators for Sustainable Cities can help Governance make more assertive decisions and improve the residents' quality of life.

Keywords: Indicators for Sustainability. Sustainability Management. Indicators for Governance**.**

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RESUMO

O objetivo geral deste artigo é apresentar a contribuição dos indicadores da norma técnica ABNT NBR ISO 37120 e os indicadores de cidade dos Objetivos do Desenvolvimento Sustentável, ODS, especificamente o ODS11, associado ao desenvolvimento sustentável como uma proposta de tornar as Cidades Sustentáveis. Foram analisadas inicialmente as condições históricas do surgimento do desenvolvimento sustentável e a evolução deste conceito observando melhorias. Na medida em que as cidades crescem, necessitam de melhorias continuas e tornando-se necessário que o governo crie meios para atender a essa demanda. A Norma Internacional ISO 37120 é a primeira voltada para as cidades, posteriormente adotada como uma Norma Brasileira, os indicadores para serviços urbanos e qualidade de vida, tem o intuito de auxiliar no desenvolvimento sustentável para as comunidades. Diante disso, este artigo busca entender se os Indicadores para Cidades sustentáveis tanto da ISO 37120, quanto do ODS11, podem auxiliar a Governança a tomar decisões mais assertivas, melhorando a qualidade de vida das pessoas que ali vivem.

Palavras Chave: *indicadores de sustentabilidade; gestão de sustentabilidade; indicadores para governança, cidade sustentável, Indicadores de Cidades*

1 INTRODUCTION

Modern researchers have discussed the concept of City and Sustainability. In 1992, in Rio de Janeiro at the Conferência das Nações Unidas sobre Meio Ambiente e Desenvolvimento - CNUMAD (United Nations Conference on Environment and Development - UNCED), proposals and results were presented and discussed to approve Agenda 21, which would be followed by guidance on sustainability for land management (CNUMAD, 1992).

Sachs (1993) addressed the concept of sustainability by classifying five items: environmental, economic, social, political and ecological. Furthermore, analyzing that economically linked means of production, distribution and consumption of resources, are effective, socially just, and ecologically viable. To achieve sustainability in society, it is necessary to connect environmental, social and economic factors, giving due importance to the cities if they developed in a balanced way (WERBACH, 2010).

According to Nalini and Silva (2017), sustainable development has an intergenerational component that emphasizes prioritization of guaranteeing constructive living conditions of present and future generations. In Brazil, there are varied scenarios of social and economic conditions in the urbanized territory and a sustainable city and is obliged to observe the three factors in the planning.

When cities become sustainable, they must create new possibilities for urban efficiency, using mechanisms for governance with possibilities for transparency in public administration and access to reliable information. For this, we can use indicators of sustainable cities as a way to contribute to decision making (PETERS, 2013).

By becoming sustainable, cities can bring benefits, such as tourism and investment by large corporations which result in better development. When comparing social, environmental and economic impacts of chemical, mining, and manufacturing industries, the tourism industry is less interested in investing (CHUNG; PARKER, 2010). However, when considering sustainability in tourism, involvement may play an important role in planning and developing the activities of its constituent segments, such as: food, transportation, entertainment and lodging (MORATELLI; DE SOUZA, 2006).

The objective of this article is to investigate the role of city indicators as a governance tool to help them become more sustainable. To accomplish this, the following research question must be answered: How can indicators contribute to the sustainable development of cities?

2 THEORETICAL FRAMEWORK

2.1 Sustainable Development

Sustainable development is based on the consolidation of social, environmental and economic objects. A sustainable city should be designed for the well-being of all citizens, without benefiting anyone, and should be designed to ensure everyone is part of development in the same way. To do so, it is necessary for governance and decision-makers to think about the city's future and how to develop a sustainable city by adequately utilizing financial resources to meet demands for needed resources (SACHS; RUHLI; MEIER, 2011).

Sustainable development aims to promote quality of life for residents to reduce environmental impacts. A sustainable city promotes quality of life for citizens and for future generations through solutions that reconcile environmental and social issues (ROGERS, 2013).

For Kemp, Parto and Gibson (2005), the concept of sustainable development arose from ecological degradation and other physical and biological damages caused by the Second World War. Economic growth and rising postwar time have generated despair in a period of increases in material wealth.

With sustainable development, it is possible to analyze the past with population growth, ways to eradicate global poverty, along with fairer policies that offer real possibilities for the growth of rich or poor nations (WCED, 1987).

This model of growth undermined the inhabited environment with a result of poverty and environmental devastation (WCED, 1987). In analyzing problems, Brundtland examines a different way of growth, "modifying the quality of growth, essential needs, and blending the environment and the economy into decision-making" (WCED, 1987, p.49), with an emphasis on human development, and equity in benefits and decisions.

Unlike the current development model, Social justice, enhanced sustainable development may be a means to eradicate poverty, and meet human needs by ensuring that everyone receives a fair share of resources, today and in the future. This is a crucial component of the concept of sustainable development (ONU, 1995).

This process needs to be achieved while encompassing all of society, without social differences, such as non-governmental organizations, women's group and other entities, and it is important to innovate and devise relevant local strategies and promote sustainability. In receiving support from international and non-governmental organizations, governments need to support sustainability by leading cities to design rights for women to participate in decision-making; respect indigenous culture as well as their rights; promote popular teaching by enabling the exchange of experiences and knowledge among communities; involve community participation in sustainable management and protect natural resources, give power to productive activities; promote institutional strengthening and sustainable development through a community education center (ONU, 1995).

Agenda 21 established a program with objectives and principles approved in the Rio Declaration, which presented a detailed plan of actions to be adopted by governments, United Nations, and development institutions, to initiate the process of changes to sustainable development (UNO, 1995).

In implementing the sustainable development commitment, a shift towards the understanding of objectives is required, along with institutional structures, planning and administration processes (GIBSON, 2000). The challenge is showing how transition can be realized and to develop a set of tools that would help governance to achieve manageable sustainability (GIBSON, 2000).

To implement sustainable development, it is necessary to harmonize and rationalize it for all human beings. People should be a significant part of this process and should be seen as a means of achieving improvements, respecting ethnic-cultural characteristics, social classes and improving the quality of life. Actions for development must have investments and programs that have a technological base in community-oriented projects and the development of solidarity and mobilization of objectives for the involved groups (ASSIS, 2006).

For Assis (2006), sustainable development is a process directed to the understanding of the different localities of a nation, leading to investment in infrastructure, favoring human development, and encouraging international processes of factors to reach Sustainability.

What is important in this context is that not only are there different responses to different situations in relation to the applicability of sustainable development, but also that there are other ways to insert and strengthen governance practices in order to respect the principles of sustainability (KEMP; PARTO; GIBSON, 2005).

2.2 Governance

To govern means to administer, to command, to lead, and to obtain a position with decision-making power to implement laws (NOGUEIRA, 2001, p. 99).

Like sustainable development, governance is a well-explored concept since the 1980s. Scholars on the subject understood that the political system consisted of ill-defined and unstable formal and informal arrangements, contrasting the traditional view of governments as identifiable formal entities. Government has an appearance of formal structures, governing over people, and the notion of governance stresses the increasingly important role of political economy (KEMP; PARTO; GIBSON, 2005).

For Peters (2013), governance must understand the governing process to discuss means to achieve predetermined goals, which must be designed so that governance activities can be evaluated, even if it is a democracy or authoritarianism, allowing for performance improvement of quality in the governance process.

Governance must act through interactions with deliberation, negotiation, self-regulation or authoritarian choice, to reach collective decisions for the good of the cities. It involves political application, state orientation, and other institutions. These governance structures need to organize negotiation processes, determine objectives, influence and motivate, set standards, perform change functions, monitor compliance, impose sanctions, and reduce conflicts to solve problems and disputes between actors (EDEN; HAMPSON, 1997).

There has been a change in governance, which, in spite of this ideological shift towards liberalization, in the last two years, the government has remained willing to play an important role in governance discourses for sustainability. This is a reasonable argument against citizen involvement or stakeholder engagement, which is important for four reasons: they increase the legitimacy of the policy; assist in reducing the risk of conflicts; offer new ideas and information through involvement; and people and organizations learn about environmental problems (COENEN, 2001).

Indicators' systems to meet governance, including for cities, facilitate communication, allowing the exchange of information, experience and approval for both experts and laymen, as well as for local, federal and state governments; businesses and ordinary citizens (HOLDEN, 2012). It would be more practical to acquire the monitoring of administration of the cities, which becomes fundamental for more effective management and enabling a clear communication between the actors of the cities.

For governance, obtaining resources is necessary for political action, and these resources include technical skills and financial resources (THOMPSON, 1965). For public services, such as environmental protection, governments need to be able to seize opportunities for decision-making, and as problems become increasingly complex, the need increases even more (WATSON, 1997; HONADLE, 2001).

Gomes (1981) argues that there are ideas for understanding local government's expectation capacity for public understanding of appropriate policies and types of service. When there are problems that represent different issues, it is necessary to use the resources of the local government or community to solve them.

The public expectation is that local governments undertake sustainability policies for the local city by learning about environmental concerns, challenging the government to bring adequate resources for problem solving and meeting the expectations of the public of cities (HANNA, 2005).

Local governments do not undertake risk mitigation strategies due to lack of ability and municipalities. This can produce constant problems with poor economic and fiscal development by limiting the adoption of innovative policies (WARNER; PRATT, 2005; WARNER; ZHENG 2010). Likewise, sustainability policies are more likely to occur in cities with better fiscal health (SHARP; DALEY; LYNCH, 2011)

Municipalities must understand the cycle of economic, environmental and equality sustainability (CAMPBELL, 1996). Sustainability challenges for local governments are complex with environmental issues, social equity and economic development (FIORINO, 2010, ZEEMERING, 2009). Sustainability is a controversial concept and local authorities should emphasize conflict resolution (JORDAN, 2008). Some environmental advocates understand that the economy plays a vital role in achieving objectives, although economic interests cannot recognize the value of environmental protection (NEUGARTEN; WOLF; STEDMAN, 2012).

Sustainability must balance the environment, the economy and social equity in a governance structure that goes forward in the 21st century in equilibrium that is easier to achieve with a varied and multifunctional approach (FIORINO, 2010; HOMSY; WARNER, 2013).

Much is expected of 'good governance' and according to the European Commission, good governance consists of openness and participation, accountability, coherence, efficiency with more sensitivity to the context promised by subsidiary (CEC 2001).

Governance for sustainability is a flexible and adaptable system for assigning decisions, control and information beyond the distribution of resources and rewards, involving all types of actors, both local and global, for use in Sustainable Development. Governance for sustainability is concerned with local and global risk prevention and management, as they are the targets of surveys conducted by international organizations (FURTADO, 2015).

There are issues surrounding global governance for sustainability, inspired by the generation of indicators. The conception begins with an understanding of global governance and sustainability and follows the definition that determines the context for understanding the nature of impacts; going through the organizational bases that are necessary for governance; and ends with the recognition of the institution's difficulties in creating the governance model (FURTADO, 2015).

Financial resources are needed for policy actions to be effectively carried out and these resources include technical skill and funding (THOMPSON, 1965). To add public services, such as environmental protection, local governments must be able to seize opportunities (WATSON, 1997) and, as problems become complex, the need for competence increases (HONADLE, 2001).

Gomes (1981) developed three components for local government capacity with expectations that involve public understanding of appropriate policies and service levels. The problems represent different issues with a set of preferences, regarding the action needed. Expectations

and problems represent internal drivers of action; the public wants the local government to address specific issues. From a polycentric perspective, presumed public expectation is that local governments will undertake local sustainability policies to address perceived environmental concerns (HANNA, 2005). The challenge for local government actors is to bring adequate resources on the problem to meet public expectations.

If local governments do not undertake complex risk mitigation strategies, due to lack of aptitude and smaller municipalities, they can enter a vicious downward spiral where weak economic and fiscal development on a small footing limits fiscal capacity and the ability to adopt innovative policies (WARNER; PRATT, 2005; ZHENG; WARNER, 2010). As a result, sustainability policies are more likely to occur in cities with better fiscal health (LUBELL; FEIOCK; HANDY, 2009; SHARP; DALEY; LYNCH 2011; ZART et al., 2008).

Peterson (1981) argued that municipal research overestimates the importance of local agencies and city managers reporting their authorities to act as this has been limited by state governments.

Municipalities must follow the economic, environmental and equity "sustainability triangle" (CAMPBELL, 1996). The challenges to achieve sustainability, in local governments are relevant to the issues of environmental science, social equity and economic development (FIORINO 2010; ZEEMERING, 2009). Sustainability is a questioned concept and local authorities must work out ways to resolve conflicts (JORDAN, 2008). Some environmental advocates understand that the economy plays a central role in achieving its objectives, although economic interests cannot recognize the value of environmental protection (NEUGARTEN; WOLF; STEDMAN, 2012).

Cities are evaluated and classified by economic, social and geographical characteristics, with specific results from the best and worst places to obtain quality of life or conditions for economic activities (GIFFINGER et al., 2010). As cities invest for benefits through the global knowledge economy, there is a need to quantify, measure, compare and rank cities according to their performance. By identifying the position of each city in the global rankings, one can identify its weaknesses and strengths which can improve its overall competitiveness. However, the expectations of different methods for the analysis of data of the various published rankings can produce varied results for the same cities (GRANT; CHUANG, 2012).

2.3 Indicators of ISO 37120 - Indicators for Sustainable Cities

Indicators can perform various functions. They can lead to more effective decisions and actions and simplify, clarify and make available aggregate information to policy makers. This assists in raising knowledge of the physical and social sciences necessary for decision making and measuring and adjusting progress towards sustainable development goals. They provide a warning system to prevent economic, social and environmental setbacks and are useful tools for communicating ideas, thoughts and values (ONU, 2007, p.3).

For Fiksel (2012), sustainability indicators are measurable points of environmental, economic or social systems to monitor changes and system characteristics relevant to human and environmental well-being.

Indicators are data sources to aid governance and can be used as a tool to draw attention to pertinent issues. They are indispensable for research into the causes and consequences of governance decisions and they are a tool to use in formulating policy advice. Moving forward requires improvements in data collection. There is considerable scope for improving the quality of governance indicators (KAUFMANN; KRAAY, 2008).

Sustainability indicators should structure and provide information relevant to issues related to problem solving or improvement beyond trends that should be considered relevant to sustainable

development. They were defined as a way to reduce a simpler amount of data, to obtain essential meaning for the questions being asked to be able to make the most assertive decision (OTT, 1978).

The indicators' aim is to support scientists, politicians, citizens and decision makers in monitoring status and changes in sustainability by predicting the consequences of action or inaction. Identifying, measuring, and correctly applying the indicators remains a challenge for politicians, students, scientists and citizens involved in sustainability (MCCOOL; STANKEY, 2004).

The need to understand and structure the indicator selection process has been analyzed for a while (Niemeijer, 2008). Understanding the right approach to represent a specific topic through an indicator is important but can be tricky. Some authors have proposed approaches and ideas on how to structure the process to develop indicators, especially for the indicators of use and management of natural resources (NIEMEIJER; DE GROOT, 2008; et al.).

Some indicators that are used in cities do not have a standard and are not comparable to each other. Therefore, ISO has developed a new standard of an ISO 37120 NBR with city indicators, providing a set of indicators as a recommendation of what and how they should be measured. The objective is to develop a model to help cities measure the performance management of municipal services and quality of life over time, facilitate the knowledge of one city with the other, where it will allow a comparison of the performance measures, comparing them and share best practices (WWCD, 2017; BHADA; HOORNWEG, 2009).

These indicators can help guide public policies, planning and management of sectors and stakeholders. ISO addresses the key benefits of adopting the 37120 standard:

- Governance as a more efficient service delivery
- International reference and goals
- Comparison and local planning
- Support for decision making
- Learning through information sharing between cities
- Obtaining financial resources and recognition in international bodies
- Well-structured sustainability planning
- Demonstration of data and results to facilitate investments

Cities around the world have sought to implement actions and policies promoting sustainability to create healthier and higher quality-of-life urban environments. In practice, these actions need to be monitored, due to the lack of results to analyze. Cities need to perform performance analysis, monitoring progress and comparing results to build sound, decision-based public policies.

In 2013, the Technical Committee of the ISO - TC 268 Sustainable Cities and Communities was established. The committee is tasked with developing technical standards, including the development of management requirements, structures, instructions, methods and tools to assist communities of all kinds to become sustainable, resilient and with indication of results (ISO, 2013).

ISO 37120 (2017) established a set of indicators to guide and measure the performance of urban services and quality of life. These indicators include sectors related to urban sustainability, developed to assist cities in three ways: measuring performance management of urban services and quality of life; make the comparison by means of successful actions of other cities; and information and best practices between cities.

There is a portal available with all the data so cities can adhere to ISO 37120 and become a motivation for other cities. With a reliable data base and international standard, this process will aid in the development and knowledge for decision making through international

comparisons. As displayed in the table below (Table 1), ISO 37120 establishes 17 themes related to services for the city and quality of life. The standard has 100 indicators of which 46 are essential indicators and 54 indicators of support are divided into the following themes: 1) economics, 2) education, 3) energy, 4) environment, 5) finances, 6) fire and emergency response, 7) governance, 8) health, 9) recreation, 10) security, 11) housing, 12) solid waste, 13) telecommunications and innovation, 14) transportation, 15) urban planning, 16) sewage, 17) water and sanitation. ISO 37120 also has 39 profile indicators, aiming to obtain complementary information to verify the comparisons between cities and to characterize the city, without the pretension of questioning which indicators are more or less indicated to achieve urban

Table 1- Topics and number of indicators of ABNT NBR ISO 37120: 2017.

Section	Theme	Main Indicators	Supportive Indicators
5	Economy	3	4
6	Education	4	3
7	Energy	4	3
8	Environment	3	5
9	Finances	1	3
10	Response to fire and emergencies	3	3
11	Governance	2	4
12	Health	4	3
13	Recreation	0	2
14	Security	2	3
15	Social habitation	1	2
16	Solid waste	3	7
17	Telecommunications and innovation	2	1
18	Transport	4	5
19	Urban Planning	1	3
20	Sewers	5	0
21	Water and sanitation	4	3
	Total	**46**	**54**

Source: the authors

These indicators for cities can be used for the development and performance of monitoring, evaluating and recommending relative objectives for the improvement of cities, and can carry out quantitative or qualitative evaluation (ABNT NBR ISO 37120: 2017).

The WCCD (World Council on City Data) was created to enable the adoption and implementation of ISO 37120 for cities around the world through this platform for verification and comparison of certified cities (WCCD, 2017). It provides a framework for urban metrics to promote learning among cities, providing better performance between cities with the goal of achieving a better quality of life for all who live there (MCCARNEY, 2015).

The development of sustainable indicators is a challenge, since it is not the technique, policy or the concept of sustainability that is reflected by sustainability etymologies. The development of the indicator will be used by decision-makers on a limited number of people and by specialists in a particular technique. These experts should decide how to solve the problem in relation to the issues available but should reach a total number of indicators. Those who decide on what to 'sustain' through ecolog-

ical, economic and social factors must have technical knowledge to make normative decisions in the philosophical and political areas in perceptions and intentions. This implies that participants in the process are not acting in their specialized technical capacity, but also as political citizens for normative decision-making on what aspects to uphold opinions. The decision on 'who participates' and 'who decides' on the development processes of the indicator is crucial, requiring skills as well as representation of balanced interest in a well-established process. The political aspects involved, such as normative and value judgments, tend to be neglected in the indicator development literature (TURNHOUT et al., 2007). Therefore, different ways of completing the two processes have been suggested, with the use of indicator frameworks to link signals to policy (GUDMUNDSON, 2003).

3 METHOD

The research has a qualitative outline based on exploratory searches to identify the methodologies to be used to analyze the interaction of Governance with the indicators of ISO 37120 described in this paper.

According to Bardin (2011), qualitative exploratory research with documentary analysis presents specific qualities for the elaboration of particular inferences regarding the events of a particular variable. Gil (1999) argues that exploratory research exists when there is little knowledge on the subject to be investigated because it is difficult to elaborate hypotheses with little knowledge. This type of research understands it is necessary to deepen the concepts on the theme proposed in the research, to clarify and to station itself in a satisfactory way for the issues addressed.

Documentary analysis is the initial phase to prepare documents with data. The method of documentary analysis is considered a treatment of content, a way of presenting it different from the original, facilitating the references, to understand the information, through transformation procedures (BARDIN, 2011).

Table 2 presents the methodology of the article:

Specific objectives	Main activities	Method
Identify the role of city indicators as a governance tool to help cities become more sustainable	Phase 1 Search key words for scientific research Sustainability indicators; Sustainability Management Indicators for Governance;	Exploratory research
Analysis of National and International Scientific Articles	Phase 2 The search used was through Capes Periodicals with databases Web of Science Scopus Science Direct Google Scholar	Documentary Search
Check information of the articles, analyzing the information pertinent to the research	Phase 3 They consist of aligning the information in the material, interpreting the data based on the theoretical framework.	Documentary analysis
Interpretation of test results	Phase 4 Based on the scientific articles and analyzes, get the opinions and information on the subject searched	Results

Source: the authors

3.1 Analysis and Discussion of Results

The analysis of some articles shows that municipalities in metropolitan areas are involved in the adoption of environmental sustainability policies for cities.

The authors demonstrate the importance of government in increasing sustainability policies among municipalities and the influence of the state to promote a discussion on environmental protection, offering incentives and technical assistance.

State governments can create a policy that educates and provides incentives for local action on sustainability issues. Governance enables discussions on environmental issues and local political barriers. It will serve as a source for scientific understanding and a repertoire of efficiently constructed policy practices, which may create conditions for difficult deal with environmental issues (KEMP, PARTO, 2005).

For Tanguay, Rajaonson, Lefebvre and Lanoie (2010), the objectives may represent an interruption on sustainable development that are a determinant in the new approach. Most studies aim to integrate the social, economic and environmental, and others try to clarify particular aspects, and specific objectives (WINSTON, 2008; THOMAS, 2002, TOMALTY, 2007, NEMETZ, 2007).

In some cases, they identify a particular challenge as a priority from a sustainable development perspective. A good example is transportation, which considers challenges to the use of transportation to support sustainable development-related problems in large cities in a Canada case study (NEMETZ, 2007). Another example is the application of indicators for housing, which considers housing-related challenges as a sustainable priority (WINSTON; EASTAWAY, 2008).

These practices contribute to assessing the strengths, weaknesses and strategic implementation forecasts for sustainable development through sustainable indicators and are not protected from the political excesses of municipal administrations that define the objectives of sustainable development that cities must meet.

The first point to address to answer the research question is that the use of sustainable development indicators for cities, whether ISO 37120 or not, should lead to better coordination of actions for cities within a given region (THOMAS, 2002). Another point is that comparisons of sustainable indicators are important because they allow cities of the same size to have a common grid to share and apply tools for success and improvement. Finally, according to the studies examined, comparison and the adoption of Sustainable Development Indicators is necessary to prevent indicators from becoming marketing tools for cities that wish to choose indicators for image improvement only.

4 FINAL CONSIDERATIONS

The emphasis of this research is on the process of developing indicators for sustainability in cities using ISO 37120. Use requires learning from the stakeholders involved in the development of sustainability indicators and the use of indicators.

The use of sustainability indicators for governance presents a challenge. To achieve sustainability, it will be necessary to establish a governance project and the practices that will favor cities according to their specific needs and will provide a basis for guiding and directing all work with the stakeholders when it comes to sustainability through connections, with sensitivity to their contexts and doubts.

The challenge is to ensure that the governance regime has the ability to coordinate and guide governance to address sustainability, giving direction and guidance. It is reasonable and appropriate to recognize that business organizations, civil societies and citizens need support and that governments have important roles to play.

We must find ways to ensure that all these actors can act in a coherent, effective way in the pursuit of sustainability, which requires more highlighting the role of informal institutions. A variety of tools are available in the development of common goals and indicators; including ISO 37120. Essential is the use of stakeholders; deliberation and decision-making mechanisms; creative application of taxes and regulatory instruments to promote the internalization of costs and other adjustments to the behavior of companies beyond consumers in the market.

Finally, sustainability indicators exist and can be used as support provided that governance seriously and genuinely has interest in developing sustainability for cities aiming at the quality of life of the population. This process will be better supported by private organization incentives that can invest to make cities better, thereby valuing cities as a whole.

REFERENCES

ASSIS, R. L. Desenvolvimento Rural Sustentável no Brasil: perspectivas a partir da integração de ações públicas e privadas com base na agroecologia. Economia Aplicada. vol. 10, no. 1 Ribeirão Preto, 2006. Recuperado de http://dx.doi.org/10.1590/S1413-80502006000100005.

BARDIN, L. Análise de Conteúdo. São Paulo: Edições 70 LD, 2011.

BHADA, P. & HOORMWEG, D. The Global City Indicators Program: A More Credible Voice For Cities. Directions in Urban Development. The World Bank.: https://openknowledge.worldbank.org/bitstream/handle/10986/10244/491660BRI0City10Box338943B01PUBLIC1.pdf;sequence=, 2009.

CAMPBELL, S. Green Cities, Growing Cities, Just Cities?: Urban Planning and the Contradictions of Sustainable Development. Journal of the American Planning Association, 62(3), 296–312. doi:10.1080/01944369608975696, 1996.

CEC. Governança Europeia: um livro branco. Comissão Européia. 2001.

CHUNG, L. H. Managing social and environment al action and accountability in the hospitality industry: a Singapore perspective. Accounting Forum. Vol. 34, Issue 1, Pages 46-53, 2016.

CNUMAD. Conferência das Nações Unidas sobre o Meio Ambiente e Desenvolvimento, 1992.

COENEN, F.'The Role of Stakeholders in Changing Consumption and Production Patterns', expert report for OECD seminar on Improving Governance for Sustainable Development, held 22–23 November 2002, http://www.oecd.org/dataoecd/50/21/1940033.pdf.

EDEN. L.; HAMPSON, F. O. Clubs are trump: the formation of international regimes in the absence of a hegemon. Page 362, 1997.

FIKSEL, J.A systems view of sustainability: The triple value model. Environmental Development. Vol. 2, Pages 138-141, 2012.

FIORINO, D. J. Sustainability as a Conceptual Focus for Public Administration. Public Administration Review. (Special Issue): s78–s88, 2010.

FURTADO, J. S. Indicadores de sustentabilidade e governança - Revista Intertox de Toxicologia, Risco Ambiental e Sociedade, 2015.

GIBSON, & R.B. Contrinuição para a sustentabilidade como critério central para avaliações e decisões n o âmbito da lei de avaliação ambiental canadense. Revista de direio ambiental e prática. vol. 10, pp. 39-55, 2005.

GIFFINGER, R.; HAINDLMAIER, G.; KRAMAR, H. The role of rankings in growing city competition. Urban Research & Practice, 3: 3, 299 -312, 2010 DOI:10.1080/17535069.2010.524420.

GIL, A. C. Métodos e técnicas de pesquisa social. São Paulo: Atlas, 1999.

GODOY, A. S. Introdução a pesquisa qualitativa e suas possiblidades. Revista de Administração de Empresas. vol.35 no.2 São Paulo, Mar./Apr, 1995.

GOMES, J. J. A consideração da capacidade de Governo Local. Administração pública revisão. 41 (6): 649-58,1981.

GOVERNMENT, U. U. Sustainable Development Indicators in Your Pocket. Recuperado de www. sustainabledeveloment.gov.uk/publications/index.htm, 2006.

GRANT, K. A. & CHUAN. S. An aggregating approach to ranking cities for knowledge-based development. International Journal of Knowledge-Based Development, Vol. 3, No. 1. DOI: 10.1504/IJKBD.2012.045558, 2012.

GUDMUNDSSON, H. The Policy Use of Environmental Indicators - Learning from Evaluation Research. The Journal of Transdisciplinary Environmental Studie.s Vol. 2, No. 2, 2003.

HANNA, K.S. Planning for Sustainability: Experiences in Two Contrasting Communities. Journal of the American Planning Association. 71 (1): 27–40, 2005.

HEZRI, A. Sustainability indicators system and policy processes in Malaysia: a framework for utilisation and learning. Journal of Environmental Management. Vol. 73, Issue 4, Pages 357-37, 2004.

HOLDEN, M. Urban indicators and the integrative ideals of cities. Cities, 23(3), 170–183, 2006.

HOMSY, G. C. Climate change and the co-production of knowledge and policy in rural USA communities Sociologia Ruralis . https://doi.org/10.1111/soru.12013, 2013.

HONADLE, B. W. Theoretical and Practical Issues of Local Government Capacity in an Era of Devolution. Journal of Regional Analysis & Policy. 31 (1): 77–90, 2011.

ISO 37120 Desenvolvimento sustentavel de comunidades; Indicadores para serviços urbanos e qualidade de vida. São Paulo: ABNT, 2017.

JORDAN, A. The Governance of Sustainable Development: Taking Stock and Looking Forwards. Environment and Planning C: Politics and Space https://doi.org/10.1068/cav6,2008, 2008.

KAUFFMANN, D. & KRAAY, A.Governance Indicators: Where are, where are we, where should we be going? The world Bank Research observer, 2008.

KEMP, René; PARTO, Saeed; GIBSON, Robert B. Governance for sustainable development: moving from theory to practice. **International journal of sustainable development**, v. 8, n. 1-2, p. 12-30, 2005.

KEMP, R.; GIBSON, R. B.; Parto, S. Governance for sustainable development: moving from theory to practice. Int. J. Sustainable Development. Vol. 8, Nos. 1/2, 2005.

KEMP, R. A.; LOOBACH, D. Governance for sustainability through transition management. Governance for Sustainability through Transition Management. Version October 14, 2003. Recuperado de http://meritbbs.unimaas.nl/rkemp/Kemp_and_Loorbach.pdf .

KOOIMAN, J. Modern Governance -New Governance Society Interactions. Sage, 1993.

LUBELL, M.; FEIOCK, R. C.; HANDY, S. City Adoption of Environmentally Sustainable Policies in California's Central Valley. Journal of the American Planning Association 75 (3): 293–308, 2009.

MCCARNEY, P. The evolution of global city indicators and ISO37120: The first international standard on city indicators. Statistical Journal of the IAOS. Vol. 31 pp 103–110. DOI 10.3233/SJI-150874. IOS Press, 2015.

MCCOOL, S. F; STANKEY. G. H. Indicators of sustainability: challenges and opportunities at the interface of science. Environmental Management. Mar; 33(3):294-305, 2004.

MORATELLI, R.F., & DE SOUZA, M. J. B. Responsabilidade Social nas Organizações Hoteleiras de Santa Catarina. Seminário de Pesquisa em Turismo do Mercosul (SeminTUR), Caxias do Sul, RS, Brasil, 2006.

NALINI, J.R.; SILVA, W.L.B. NETO. Cidades Inteligentes e Sustentáveis: desafios conceituais e regulatórios. In: CORTESE, T.T.P.; KNIESS, Cl.T.; MACCARI, E.A. **Cidades Inteligentes e Sustentáveis**. 1. ed. Barueri: Manole, 2017. cap. 1, p. 3-20.

NEMETZ, P. SMART Transportation Ranking Report. Vancouver: Appleton Charitable Foundation, 2007.

NEUGARTEN, R. A.; WOLF, S. A.; STEDMAN, R. C. Forest Fights and Forest Rights: Working Forests as a Strategy for Reducing Tensions in New York State. Society & Natural Resources. 25 (12): 1205–20, 2012.

NIEMEIJER, D. A conceptual framework for selecting environmental. Ecological Indicators. 8(1):14-25, 2008.

NIEMEIJER, D. & GROOT, R. Uma estrutura conceitual para selecionar conjuntos de indicadores ambientais. Revista Indicadores Ecologicos .Vol. 8, Edição 1, pp. 14 - 25 Recuperado de: https://doi.org/10.1016/j.ecolind.2006.11.012, 2008.

NOGUEIRA, M. Em defesa da política. Editora Senac.2 ed. 152 p., 2001.

ONU, O. D. Agenda 21. Recuperado de: www.un.org/esa.sustdev/documents/agenda21/english/agenda21toc.html, 1992.

OTT, W. L. Environmental Indices: Theory and Practice. Ann Arbor Science, 1978.

PETERS, B. G. O que é Governança. Revista TCU. 127(45), 28 -33. Acesso em 21 de 05 de 2018. Recuperado de http://revista.tcu.gov.br/ojs/index.php/RTCU/issue/view/3, 2013.

PETERSON, P. E. City Limits. Chicago: University of Chicago Press, 1981.

ROGERS, R. Prólogo de Richard Rogers. In: GEHL, J. Cidades para pessoas. 2. ed. São Paulo: Perspectiva, 2013.

SACHS, I. Estrategias de transição para o seculo XXl - Desenvolvimento e Meio Ambiente. São Paulo: Studio Nobel - Fundação para o desenvolvimento Administrativo, 1993.

SACHS. S; RUHLI, E. & MEIER. C. Stakeholder Governance as a Response to Wicked Issues. Journal of Business Ethics. Vol. 96, Supplement 1. pp. 57-64. DOI 10.1007/s10551-011-0944-4, 2010.

SHARP, E. B.; DALEY, D. M.; LYNCH, M. S. Understanding Local Adoption and Implementation of Climate Change Mitigation Policy. Urban Affairs Review. 47 (3): 433–57, 2011.

TANGUAYA, G. A; RAJONSONB, J.; LEFEBVREB, J. F; LANOIEC. P. Measuring the sustainability of cities: An analysis of the use of local indicators. Ecological Indicator. Volume 10, Issue 2, Pages 407-418 https://doi.org/10.1016/j.ecolind.2009.07.013, 2010.

THOMAS, P. Y. Indicateurs pour un de´veloppement durable urbain. Bruxelas: IBGE, 2002.

THOMPSON, V. A.Bureaucracy and Innovation. Administrative Science Quarterly. 10 (1): 1–20, 1965.

TOMALTY, R.The Ontario Urban Sustainability Report. The Pembina Institute.Recuperado de https://www.pembina.org/reports/ocsr-07-report.pdf, 2007.

TURNHOUT, E.; HISSCHEMOLLER, M.; EIKACKERS, H. Ecological indicators: between the two fires of science and policy. Ecological Indicators 7, 215–228. https://doi.org/10.1016/j.ecolind.2005.12.003, 2007.

WARNER, M. E. & PRATT. J. E. (2005). Spatial Diversity in Local Government Revenue Effort Under Decentralization: A Neural Network Approach. Environment and Planning C: Government and Policy 23 (5): 657–77, 2005.

WATSON, D. J. Climate for Innovation In Innovative Governments: Creative Approaches to Local Problems. edited by D. J. Watson, 1–8. Westport: Praeger Press. 1997.

WINSTON, N & EASTWAY, M. P. Sustainable Housing in the Urban Context: International Sustainable Development Indicator Sets and Housing. Social Indicators Research. Vol. 87, Issue 2, pp 211–221, 2008.

WERBACH, A. Estrategia para a sustentabilidade: uma nova forma de planejar sua estrategia empresarial. Elsevier: Rio de Janeiro, 1ed. 224 p, 2010.

WCED (1987). World Commission on Environment and Development Our common Future. Oxford: Oxford University Press, 1987.

ZHERNG, L. & WARNER, M. Business Incentive Use Among U.S. Local Governments: A Story of Accountability and Policy Learning. Economic Development Quarterly. Recuperado de https://doi.org/10.1177/0891242410376237, 2010.

ZEEMERING, E. S. What Does Sustainability Mean to City Officials? Urban Affairs Review. Recuperado de https://doi.org/10.1177/1078087409337297, 2009.