

# Urban Observatories, Tools for Monitoring Cities

ANDREIA CRISTINA FERREIRA<sup>1</sup>, LÍGIA TORRES SILVA<sup>2</sup>, RUI RODRIGUES RAMOS<sup>3</sup>

Department of Civil Engineering

University of Minho – Engineering School

Campus de Gualtar – 4710 057 Braga - PORTUGAL

(1)andreaferreira@civil.uminho.pt; (2)lsilva@civil.uminho.pt; (3)ruiramos@civil.uminho.pt

www.civil.uminho.pt/c-tac/

*Abstract:* - The growth of urban areas, and all the problems that this fact entails, give rise to the urgent need to search for tools capable of assisting urban management. The urban observatories are, then, a tool that allows the monitoring of cities through the use of indicators, by assessing their progress over time. The observatories are also important to support decision-making, involvement of people in decisions, data analysis and compilation and availability of data, which were previously unavailable to the general public. This paper makes a synthesis of the literature on the theme of Urban Observatories as a tool for monitoring our cities, with the objective to serve as a theoretical basis for the possible implementation of a project of this nature in Portugal.

*Key-Words:* -Urban Observatory, UN-Habitat, Global Urban Observatory, Agenda 21, Habitat Agenda, Millennium Development Goals, Indicators.

## 1 Introduction

Nowadays, cities present more problems related with continued growth. This growth means that the amount of data is increasing and, thus, there must be a more effective management to understand such data and use it effectively.

According to [1], it is estimated that over the next five years, two thirds of the world population will reside in urban areas. This density and diversity, as well as the population concentration, are affecting people around the world to greater extent than any other phenomenon in human history.

For [2], in urban areas the “natural” environment is increasingly suppressed at the expense of economic development. These factors, when combined with concentration and income inequality, generate consequences that may result in environmental degradation, social disturbance and insecurity, poor housing, inadequate supply of infrastructures and urban services inapt to the quality of life.

Therefore, for [3], to rethink the management, planning and urban governance from a considerable number of limitations, it is not an easy task; however, it must be immediately taken. As a possible solution to tackle these issues it is a priority to develop tools that permit the practice to public actions for sustainable development.

The major challenges at present, such as poverty reduction, climate change, and creation and maintenance of an inclusive and pacific society, will be faced within the cities [1]. In this context arise the Urban Observatories, to monitor the statuses of

cities and to check urban data, in order to compile indicators that can serve as a comparison between different parts of the world and to serve as tool and decision support, making the information more credible and updated.

The objective of this paper, which is part of an extensive research project on the thematic of Urban Observatories executed by the authors, is to make a theoretical framework for monitoring implementation of the Observatories of the cities, describing some examples of the global application of Urban Observatories.

## 2 Systems of Urban Observatories of the UN

The UN-Habitat program: United Nations Human Settlements Program was a pioneer in the collection of urban indicators. This program began in 1976, in the United Nations Conference on Human Settlements (Habitat I), in Vancouver, Canada.

In 1991 the UN-Habitat initiated the Housing Indicators program, this program evolved in 1993, to the Urban Indicators Program, in order to focus more on urban issues, to compile and monitor data on a sample of urban cities around the world.

Afterwards, the Global Urban Observatory (GUO) was created which took the work of the Urban Indicators program and expanded the program to include specific indicators of the Habitat Agenda, the main policy document, to be discussed below, was published in 1996, and resulted from the United

Nations Conference on Human Settlements (Habitat II), in Istanbul, Turkey [4].

The creation of Urban Observatories took place when UN-Habitat recognized the importance of the participation of cities to achieve the targets set in the Millennium Development Goals.

It is then important to understand the concept that formed the basis of this article, that is, to understand the meaning of the Observatory. According to [5], an Urban Observatory can be a governmental agency, a research center or an educational institution that is designated as an agent, whose monitoring tools are developed for the formulation of policies through advisory processes.

Starting from the objective that is to assist authorities and communities to improve the collection, analysis and use of information for formulation of more effective urban policies, urban observatories seek to understand the functioning of cities as economic and social systems and, evolving from this understanding, to promote the construction of an integrated and effective planning [6; 7].

The Urban Observatories, according to the UN, are divided in these three different types: Local, Regional and National, and all observatories are connected to the Global Urban Observatory. It is clear from the outset, according to its designation, that one of the differences is in the area of intervention (local, regional or national).

UN-Habitat's Global Urban Observatory was created to improve information to the cities. This project addresses the urgent need to improve the worldwide base of urban knowledge by supporting Governments, local authorities and organizations of the civil society to develop and apply policy-oriented urban indicators, statistics and other urban information on various cities [5].

## 2.1 The role of observatories in monitoring agendas

The United Nations – UN had the initiative of creating Urban Observatories, with the purpose of establishing a worldwide network of information to contribute to the implementation of Agenda 21 and Habitat Agenda, at the local, regional and national levels.

Agenda 21 is an action plan, based on a document of 40 chapters, which is the most inclusive attempt to promote worldwide development, combining methods of environmental protection, social justice and economic efficiency. This document went through a two-year preparatory process, to which contributed governments and civil society institutions.

The Habitat Agenda was adopted by 171 countries; this document can be viewed as a result of Agenda 21. This document sets out strategies towards sustainable development in urban areas of the world.

### 2.1.1 Agenda 21

Sustainability issues have been discussed since 1972, when the UN established the World Commission on Environment and Development, in Stockholm.

In 1987, this same committee, published a report entitled “Our Common Future”, also known as the Brundtland report, in which appears the most widely used concept of Sustainable Development. This report indicated the root causes for unsustainability and environmental crisis: poverty in the countries of the south and extreme consumerism in the countries of the north. The committee recommended that a conference be convened on these topics.

The concept of sustainable development was agreed in Agenda 21, which began to be drawn up in 1989, with approval at a United Nations extraordinary meeting by a conference on the environment and development, as it had been recommended by the Brundtland report. The elaboration of rough sketches of the program, which, like all agreement of the UN members states, has undergone a complex review process, consultation and negotiation, culminating with the United Nations Conference on Environment and Development, known as “Earth Summit”, which was held in Rio de Janeiro in 1992. Agenda 21 has had a close monitoring over the years. In 2000, based on a decade of UN conferences and summits, world leaders assembled at the UN center in New York, adopted a supplementary agenda, called Millennium Development Goals (MDG), which gave particular emphasis to globalization policies and eradication of poverty and hunger, approved during the assembly with the Millennium Declaration [8].

In addition to establishing the MDGs, Agenda 21 also sets out the goals and deadlines for achieving them, and which indicators to consider in order to monitor their progress.

### 2.1.2 Habitat Agenda

The Habitat Agenda comes as a result of the second United Nations Conference on Human Settlements held in Istanbul; Turkey in 1996. This conference had as objectives, to assess progress and set goals for the new millennium. This policy document contains over 100 commitments and 600 recommendations [7].

According to [9], the program expressed a clear concern for improving the condition of the poor, and

helped the Members monitoring to gradually achieve the “Cities without slums” Target, also known as Target 11, one of the three targets of Goal 7 “Ensure environmental sustainability”. Target 11 states “By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers”. However, the revision of the MDG monitoring framework, renumbered Target 11 as Target 7D.

The Habitat Agenda stands out from all other agendas, as it is aimed at monitoring and assessing the evolution of cities, by checking the evolution of indicators defined in the agenda.

In the present context, where in developing countries, slum residents are more than 50% of the population and have little or no access to housing, water and sanitation [5], the agenda is an asset to the cities in pursuit of these objectives.

### 3 Examples of Urban Observatories in the World

Presented below are examples of urban observatories implemented worldwide. The observatories are integrated in the UN-Habitat Observatories network and, as can be seen, are based on the indicators used by Agenda 21 and Habitat Agenda.

#### 3.1 Regional Base Observatory of Sustainability Indicators (RBOSI)

The Regional Base Observatory of Sustainability Indicators launched in 2004, is a program of the Institute for the Promotion of Development – IPD, supported by the Federation of Industries of the Paraná State – FIPS, certified by the Global Urban Observatory of UN and integrated into the worldwide network of UN-Habitat observatories.

In the first report by the observatory in 2004, which was named Book of the Millennium Indicators of Curitiba Region 2004, 48 indicators were listed which were against the indicators that monitor the MDGs, but these were adapted to the Curitiba region.

In 2005, the bases of monitoring were extended to the remaining state and so in 2006 the Book Millennium Indicators of Parana was published and, more recently, the MDG Indicators report [10].

The RBOSI tracks the performance of cities through a MDGs monitoring panel that is presented in its reports. When evaluating each of the goals of the MDGs it is possible to have an overview of the current situation of the cities. In this way, it is also possible to know where is the need to be aware and

to take action to address these problems before they evolve.

In the monitoring panel, the parameters analyzed are the targets of MDG. Each of the MDG targets is presented in one of three colors (green, yellow or red), according to the situation in which the analyzed target is advancing. The green color means that the target will be reached, the yellow color means there will be difficulties in achieving the target, and the red color means that the target will not be reached [11].

#### 3.2 Recife Observatory

The city of Recife, according to [12], holds the title of Brazil’s most insecure capital, and ranks among the ten most violent cities in the country, according to the criterion of murders per 100 thousand inhabitants. Shocked by this reality, and realizing that the insecurity statistics are the tip of an iceberg of economic, social and environmental imbalances, civil society organizations composed by Recife citizens, concerned with the quality of life for all those who inhabit the Pernambuco capital, decided to create the Recife Observatory movement. This movement brings business and academic sectors and social citizen movements, with the purpose of selecting, proposing and monitoring indicators of the Recife city.

The Recife Observatory (RO) mission is to mobilize the society to select, monitor and propose a set of indicators and targets that constitute an agenda for the sustainable development to Recife and to allow it to be a better city to live in: socially just, environmentally balanced and economically viable.

As with any observatory, the choice of indicators is a process that has several steps, beginning with the data organization, which was structured on a technical proposal of admittedly strong indicators, for evaluation of various aspects of quality of life and ensuring the rights of the population. According to [13], this proposal went to discussion and validation by the Thematic Working Groups (WGs). For the social assistance theme there was no WG. In the case of urban space and governance, the WGs were formed, but the discussions and issues concerning them could not be converted into indicators. From this, the topics covered by indicators of the RO are presented below: Health; Education; Urban Space, mobility and housing; Work, income and sanitation; Youth; Governance; Social assistance; Security.

For each topic, the most recent data possible was collected, to create an updated portrait of the city. According to [13], the information came from official sources – the so-called administrative

resources. The use of these sources can update all regular data and create a culture of “indicators management”, this is, with an objective purpose of measurement.

### 3.3 Millennium Observatory of Belo Horizonte (MOBH)

Belo Horizonte was one of the cities invited by the UN in 2006 to participate in the project “Localizing the Millennium Development Goals”, which proposes cities to commit themselves to measure and monitor the targets concerning the eight MDGs until the year 2015. On that date comes the Millennium Observatory of Belo Horizonte (MOBH).

The MOBH is a space for production and dissemination of information about the city of Belo Horizonte. It is composed by a group of institutions that, in a collaborative way, share their technical and human resources to expand and qualify the knowledge in order to subsidize the local public actions in favor of human, urban and environmental development of Belo Horizonte [14].

MOBH partners are: UN-Habitat, the City Hall of Belo Horizonte, the João Pinheiro foundation, the Federal University of Minas Gerais, the State Government of Minas Gerais, the PUC Minas, the UNA University Center and the Mining Foundation of Culture and Education [14].

The observatory publishes MDG monitoring reports. In these reports, after analyzing the indicators, it was possible to follow the evolution of the city. These indicators concerned the following topics [15]: achieve universal primary education; promote gender equality and empower woman; reduce child mortality; improve maternal health; combat HIV and other diseases; ensure environmental sustainability; develop a global partnership for development.

For each of these objectives, various indicators have been formulated, some of them identical to the indicators of Agenda 21, others, more appropriate to the Belo Horizonte reality.

### 3.4 Regional Vancouver Urban Observatories (RVU)

According to [16], the Regional Vancouver Urban Observatory (RVU) was established in late 2004, as the first local urban observatory within the UN-Habitat Global Urban Observatory network in Canada. The RVU was founded by the Urban Community of regional Vancouver, British Columbia and is a project based at Simon Fraser University in Vancouver.

When the observatory began its work, it recognized that the region of Vancouver had already some sustainability policies initiatives underway; however, the region was without a community-driven, policy relevant set of indicators to determine progress toward policy goals. This lack of indicators to serve as a basis for decision making, according to [17], reflect government sidelining of the importance of public participation. For this purpose, arises the RVU to fill these gaps, in terms of sustainability policies, establishing a long term sustainability monitoring station, with the aim of coordination, communication, as well as research functions.

The initial research was based on indicators and results of projects in other cities in the world that had experience in this field. According to [17], different areas of the city were considered on issues such as urban environmental economics, urban governance, urban issues relating to needy population, poverty focus among new immigrants.

Then, a process was followed to select the indicators to be used. A study group was created, which included different people in various sectors. This group was responsible for recommending a list of indicators, which had the feedback from the general public, in many ways, personally or electronically, including a survey on the web.

After some adjustments, the sources of existing data for the selected indicators were then sought. The results of this research were presented at the Inaugural Report of the Regional Vancouver Urban Observatory, and covered the following areas: mobility; poverty; economic development; governance; building community; environment; food; arts and culture.

### 3.5 Jeddah Urban Observatory (JUO)

According to [18], the growth in the metropolitan area of Jeddah created problems such as unemployment, poverty and the decline of urban services. Thus, the Ministry of Municipalities and Rural Affairs established the need to create an urban observatory in Jeddah, the Jeddah Urban Observatory (JUO), to address these problems. In July 2006, the Municipality of Jeddah inaugurated JUO.

The JUO follows the recommendations of UN-Habitat and the World Bank in the project preparation and development of a database for the production of internationally agreed indicators.

The observatory has the mission to monitor and document the information, so that the social, environmental and economic dimensions, can be

turned into statistical data to be measured and compared [18].

In practice, according to the same source, JUO collects the information by the participation of governmental agencies and the private sector in a Geographic Information System (GIS) which manages the database related to key urban indicators. The operation involves decision makers and the local community and is targeted at regional development plans.

### 3.6 Urban Observatory of Merida (UOM)

The Local Urban Observatory of the city of Merida (UOM) was accepted as a member of the UN-Habitat Network of Observatories in 10 September 2008.

The UOM is an instance of reference necessary in policy definition, for monitoring the urban conditions of the city in terms of social, urban, economic, cultural and environmental components [19].

On the other hand, as already analyzed in other observatories, the mission of this observatory is to make information about housing, social development and governance accessible to the general public, by means of indicators that reflect local priorities through coordinate efforts between citizens, public, private and non-governmental agencies [19].

This observatory is thus, a reference, to support decision-making, policy-making, and monitoring urban conditions of the city in several areas.

Based on the indicators of Habitat Agenda, the UOM is based in the following topics: housing; social development and poverty eradication; environment; economic development; governance.

## 4 Conclusions

The present study began by focusing on the question of the complexity of the city management that is inevitably linked, on one hand, to its growth in recent years, and secondly to the lack of tools that help the decision-making process to tackle the real problems of cities. Given this context of unsustainable growth of cities, urban observatories arise, taking a leading role in monitoring and supporting decision-making, as well as in the promotion of civic participation of citizens.

After contextualizing the current landscape of cities, the review of the system of urban observatories began, highlighting the UN as a pioneer in terms of the collection of urban indicators for monitoring and tracking the evolution of cities. Afterwards, the distinction between different types of observatories,

Local, Regional and National, was established, stressing that they are all connected to the UN Global Urban Observatory.

The role of the observatories was later addressed in the monitoring of Agenda 21 and Habitat, pointing to each of the targets and indicators to monitor progress towards the achievement of these goals.

Finally, different examples of urban observatories in the world were analyzed. According to the examples analyzed, it was found that the observatories are important tools for understanding how cities work, analyzing several areas, such as environment, economy, society, housing, etc., in order to improve the planning efficiency, for sustainable development, towards improving the quality of life of citizens.

In the examples presented it can be seen that, in some cases the municipalities themselves launch the observatory when it is apparent that there are problems, in particular in terms of population growth, as was the case of JUO. On the other hand, other observatories were created by various entities, including citizens, as seen in the Recife Observatory, where the problems of insecurity led several civil society organizations to build the observatory. The Merida, RBOSI, MOBH and RVU observatories result from partnerships between public and private agencies.

So it can be seen that observatories exist to address the problems of regions or cities where they are implemented. Despite being based on the UN-Habitat program, each was suited to specific contexts and characteristics of the city and/or region.

At the basis of these observatories and, in order to be able to monitor the performance of cities, are systems of indicators, which, as analyzed, often require a lengthy process to its selection. In the case of RVU, in the selection process of indicators has undergone a long period of public consultation, and the creation of a study group, which included diverse actors from various areas.

However, these processes result from the involvement of many citizens, in different areas, thus promoting citizen participation in top decisions. This is an aspect that, in the analyzed cities where the observatories are already implemented, is of the most importance, making possible a closer relationship between citizens and political power, giving more credibility to the political system and allowing data to be available to all, which is a clear sign of transparency.

On the other hand, the observatories allow continuous monitoring and therefore, preventive measures are taken, instead of remediation.

Currently, the solutions for the problems only appear after the problem exists, however, this should not be a common practice. Solutions should be considered at earlier stages, when an indicator shows signs of weakness.

In Portugal there is still no Urban Observatory recognized by UN-Habitat. It is important to mention however that the Indicator System for Sustainable Development (ISSD) was developed by the Portuguese Environmental Agency (PEA). This program seeks to meet the objective that the observatories have, that is, to provide a database accessible to the general public thus facilitating the communication between decision-makers and the general public.

With this research an extension of knowledge regarding Urban Observatories and their indicators is expected, in order to propose a methodology that may serve as a basis for an observatory that can be implemented in a mid-sized city in Portugal.

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