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Measuring the Social Component of Sustainable Development in the Cities. The Case of Medellín, Colombia

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Abstract

Sustainable development is currently a very up-to-date topic, the understanding and use of which has now gone further from its initial—environmental association. This paper is focused on one of the "youngest" kinds of sustainable development which is social sustainability. Its key elements are social inclusiveness, equality, access to education, diversity and safety, as well as good social capital—among others. As the most vague and human-related kind of sustainable development, it causes discussions on its measurement and international comparability. The example of Medellín, a Colombian city awarded for its innovativeness, is presented to discuss social sustainability measurement on the city level. This example proves that social sustainability tools are most useful when related closely with the social policies, which at the city level is fully doable.

Keywords: sustainable development, social sustainability measurement, social capital, life standard

Introduction

Measuring what is related to people is always challenging; they move, they lie, they don't know. Therefore the most human-focused component of sustainable development—social sustainability—is the most controversial; it is the youngest and the least theoretically structured. Yet, it is very interesting to participate in the discussion, supporting the theory with the Latin American city. The aim of this paper is to present in brief the social sustainability concept, with focus on its measurement. Afterwards these usually European origin theories will be compared against one of the most stunning examples of urban and social reforms in the Colombian city of Medellín. The key question concerns the trade-off between international (inter-regional) comparability versus the application and "actionability" values. Are they well-balanced at level of the city?

The term "sustainable development" was first used by the ecologists' movement in the 19th century and meant to be "the greatest good for the greatest number for the longest time" (Dresner 2002, 20). The drivers behind such claims were often of an economic nature; they referred to the most efficient way of resource exploitation. The environment was not a subject, but still an object of the anthropocentric worldview at that time.

Currently we could agree that sustainable development is defined as meeting "the [human] needs of the present without compromising the ability of future generations to meet their own needs."[1] The general idea remains then similar to that from the 19th century, but it is driven by a different worldview and it allows wider application. In the beginning of sustainable development thinking, the approach was strictly nature-focused. Later on, the economic concerns were also included in the debate. The social component which is the key focus in this paper appeared in the late 1990s, but still the availability of the social sustainability theoretical base, studies and

1. See information published at http://public.wsu.edu/~susdev/WCED87.html.

literature is limited as compared to that of economic and environmental factors. In addition, the policy makers also still put more weight on the environmental and economic components. "This is mainly because sustainable development was born out of the synergy between the emerging environmental movement of the 1960s and the "basic need" advocates of the 1970s, but also because assessing social aspects of development presents measurement problems" (Colantonio 2007, 3).

1 Social sustainability; definition, components and measure

The definition provided by Polese and Stren (2000, 15–16) says: social sustainable "development (and/or growth) is compatible with harmonious evolution of civil society, fostering an environment conductive to the compatible cohabitation of culturally and socially diverse groups while at the same time encouraging social integration, with improvements in the quality of life for all segments of the population." Many others provide definitions of social sustainability: Baines and Morgan (2004), Sinner et al. (2004), lastly, Hans-Boeckler-Foundation (2001), Omann and Spangenberg (2002), Bramley et al. (2006), where common elements could be listed as below.

The socially sustainable society:

- is inclusive and egalitarian, with special attention to potentially marginalized sectors (women, children/elderly/disabled/unemployed);
- pays great attention to accessible and good quality education;
- is culturally and socially diversified and promotes mutual tolerance;
- maintains and develops the stock of social capital
  - cares about good relationships, personal responsibility and respect for what is public,
  - is participative, has effective ways of decision-making and problem-solving;
- aims to systematically improve the "quality of life"
  - where work is a very important component of well-being in the society ("more and better jobs");
- has well functioning institutions (some scientists consider "institutional sustainability" as separate factor);
- has a safe (from crime) and secure environment.

The social capital as mentioned above, is noted by more and more scientists as playing an important role in social sustainability. Also, "community" and "neighborhood" have become the central focus of the analysis (Middleton, Murie, and Groves 2005) and action; all the changes and policies should be also in line with a society's/community's values and preferences and applied on the lowest class of administration (neighborhoods instead of the entire city).

While economic and environmental goals are relatively easy to measure and the measures applied are purely objective, it is extremely difficult to operationalize social development progress. Some variables (income, diseases, homicide rates) are objective and available at relevant institutions; although others (satisfaction, participation, relations, happiness) are purely subjective and can only be collected declaratively. Therefore declarative, quantitative, questionnaire based studies are inevitable in the process of social sustainability assessment.

Andrea Colantonio (Centre for Analysis of Social Exclusion (CASE)) describes the following obstacles to measuring sustainable development; which are mostly of a methodological nature:

- The difficulty to isolate specific impact; all kinds of policy and reforms have influence not only on the target group and key focus issues, but their impact is usually wider and spreading in directions which are hard to measure. Moreover, different social programs might have a synergy effect, which is hard to split by the source of the change.
- Conflicting impacts; social, economic and environmental factors are interdependent either and pursuing e.g. economic goals simultaneously with the social, might partially hinder each other's effectiveness. There are clearly some trade-offs between social, economic and environmental components (Colantonio, Andrea, 2007 s. 19,)
- Project vs. macro factors originating changes; society is of course not an isolated entity, it is strongly influenced by external and macro changes like economic crisis, joining international unions or changing political conditions in other countries.

- Cumulative and derived impact; the group which is an addressee of the social program is usually the target for more than one program and thus the impact of one particular program cannot be extracted.
- The author also mentions the lack of longitudinal data (Barrow, 1997; Coccossis and Parpairis, 1992; Hughes, 2002). It is true that there is no single „social sustainability index" which would be measured continuously, but many of the variables that contribute to the social sustainability concept are tracked and systematically monitored (this will be also discussed further).

Other strong obstacles for measuring it are lack of agreement on the theoretical background and another — no optimum or benchmarks available.

Some authors (Babb 2005, 6) emphasize also the difficulty in cross-country comparisons. They criticize application of strictly the same measures/questions worldwide; such solutions do not take into account cultural diversity, varying social structures, differences in the most burning issues, different elements/types of social capital and many other quite intuitive reasons for lack of comparability. The other less strict solution is keeping the core of the questionnaire the same across countries, and some questions adjusted to a particular country's needs. The most country-relevant and least — internationally comparable method is setting common concepts but local questions with the guidelines (Babb 2005, 7). There are guidelines (Colantonio 2007, 19) saying that the most effective approach is including place-specific conditions and subjective factors, as this is most useful for policy-makers.

Different sorts of indicators are the key tool measuring social sustainability. The first attempts to measure the progress of social sustainability were taken up by the UNDP in the late 1990s. As a result, 134 economic, social and environmental indicators were developed. Many other organizations developed their own indicators for their own purposes. While in the very beginning mostly statistical and objective data was considered, currently qualitative input is also used.

2 Measuring social sustainability in Medellín

While measuring and monitoring social sustainability in Europe is constantly being discussed, applied, improved and again discussed, "in the developing world, the initiative of several cities of Colombia and Brazil stand out. Although less structured than their counterparts in Europe and New Zealand, some of their monitoring systems have greater flexibility for exploring issues of immediate interest to citizens" (Lora and Powell 2012, 227–228). Flexibility and immediacy are with no doubt values. On the other hand, the wider the scope of the system is, the less flexibility it has.

The authors mention the "Cómo Vamos" system, in Bogota, but it needs to be highlighted, that currently the system covers 11 cities in Colombia (La Red Colombiana de Ciudades Cómo Vamos), and 37% of the country's population. What is more, other countries joined the chain of the cities covered with this study: Argentina, Bolivia, Brazil, Chile, Ecuador, México, Paraguay, Peru and Uruguay. The program has developed the manual/constitution of the program, inviting new cities and countries to join.

Yet, some researchers (Lora and Powell 2012) point out that while the program includes objective and subjective measures, the link between both is lacking. The right use of subjective indicators is then using objective and subjective indicators always together and with clear understanding of their mutual relations and impact, as only this provides complete information (Lora and Powell 2012, 230). The other obstacle mentioned by the authors concerns many topics covered in such research which hinders international comparability. This is though very likely that systematic control and the detailed guidelines of the Cómo Vamos program allow at least some comparability among Latin-American countries.

Medellín, the focus of this paper, has already presented itself as a progressive and modern city, which stands up to European standards in terms of monitoring and measuring social development. The city was founded in 1616; in 1826 it became the capital of the Department of Antioquia by the National Congress of the just born Republic of Gran Colombia. During the 19th century, Medellín was a dynamic commercial center, first exporting gold, then producing and exporting coffee. The most important industrial and development changes occurred in the 1930s. The social and cultural

development was followed by the tremendous economic growth, thanks to coffee crops and gold extraction. After 1945 the tensions between the Liberal and Conservative parties resulted in violent political conflict, particularly in rural areas. This period is called "La Violencia" and has an impact on the Colombian society until today. As a consequence Medellín was faced with increased immigration and rapid urbanization process, without proper planning and order. In the 1970s drug cartels were emerging, which caused tremendous social and political problems, hindering the city's development. It was the period, when Medellín received the etiquette of the "most violent city in the world." The whole 1980s were affected by the civil war which was going on in the streets. The appearance of the cartel and the poverty in the city intertwined; as the illegal business found a „fertile ground" among the marginalized, poor social classes, who saw no alternative. Medellín saw thousands of victims and regression of its development. This lasted until the end of the 20th century, making the city strongly associated and known worldwide as a violent headquarters of drug cartels, Pablo Escobar, sicarios (contract killers) and omnipresent violence (Rodríguez Jiménez 2009).[2]

In 2004 under Sergio Fajardo's rule, the city announced a new urban plan of development and managed to fight the violence and achieved the lowest homicides rate since the 1970s. At the same time the entire country reduced its homicide rate almost by half in 10 years (United Nations Development Programme 2013). Yet, 5 years later this rate increased again in Medellín, since the drug business had not been entirely extinguished. The reform and development process continued and in 2012 the city became the most "Innovative City of the Year" as declared by a joint City/Urban Land Institute/Wall Street Journal contest.

The city governors operate within the ongoing plan of development. The first plan took place in 2004–2007, called "Del miedo a la esperanza" (from fear to hope) and apart from huge positive changes it was able to attract the world's attention and improved the city's image significantly. The changes keep happening, also with the current Aníbal Gaviria Correa who pursues the 2012–2015 plan of development called: "Medellín: a home to live." This plan includes clear objectives, which meet the requirement of measurability. It also openly claims that it follows the principle of sustainability: the development that from social, economic and environmental perspectives guarantees certain living conditions for the next generations (Medellín, Plan of Development).[3] The key principles are life as supreme value, search for equality as a consequence of political and social rationality, legality and care for public goods and resources and primacy of general over particular interest.

Especially the last objective appears very characteristic for Latin America, and could be rather controversial in, for example, Europe. The superior objective of this plan is to continue with the Human Integral Development, which will facilitate building the city of equality: "inclusive in the social, distributive in the economic, democratic in the political and sustainable in the environmental area." (Plan of Development). The interesting thing here is that the term "sustainable" is used only for the traditional — environmental understanding, while for the social dimension this is "inclusiveness" that expresses the objective for social development.

The strategy of Medellín's urban development includes 4 basic measures, that indicate progress in the areas of focus. In the following part, they will be shortly described.

3 Rate of homicides

The history of the city proves that homicides were the most severe illness of the city. Omnipresent violence, a problem throughout Colombia, although less a problem now, is still monitored closely and each success (e.g., "7 days without murders") is communicated and received with joy. Yet, the problem is not fully solved, and this indicator is among the key measures. Rate of homicides is one of the elements strongly differentiating Medellín and Latin American cities from the European. This is not only strictly controlled year by year for the whole city, but also available and measured

2. See also Historia de Medellín article [in Spanish] at Wikipedia pages, [@:] http://es.wikipedia.org/wiki/Historia%20de%20Medell%C3%ADn?oldid=79158908.

3. See information presented at http://www.concejodemedellin.gov.co/concejo/concejo/index.php?sub_cat=6389#.VUsWZfC6P6k.

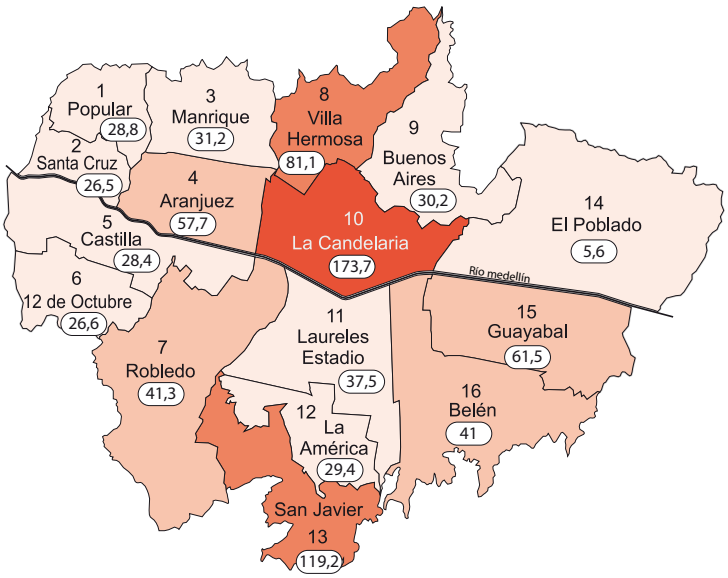

Fig. 1. Homicides rate in Medellín by communities

separately for communities, as the special neighborhood factor is very discriminating here. This indicator is the basic one that responds to the development objective of "life as supreme value."

4 Multidimensional Indicator of life conditions

This indicator is a single number factor (the values vary from 0 to 100) that cumulates 42 variables influencing quality of life in Medellín. ICV is based on Amartya Sen's theory of living standards. Amartya Sen in defining the standards and giving the guidelines for its measuring, was focused on the people's "basic needs" with respect to both commodities and functionalities. In other words, not only the material goods but also the opportunities they give have to be taken into account. Then, their significance—the proper weights should be considered (Sen 1985, 33–38). On the operational level measuring in ICV is based on:

- choosing the set of attributes which are related to the life quality of the individuals in the population;
- choosing the proper way of combining all the attributes in one single indicator (standardization of variables).

The following components of a multidimensional indicator of life conditions are included in the indicator:

- surrounding and quality of the household: the social stratum (estrato) of the household, quality of the house (house made with materials improper for the particular stratum)
- access to public services: number of public services, number of unavailable public services
- the environment: air pollution perception, ravines, garbage, noise and forestation
- scholatization: education of the head of household and his/her partner/spouse
- lack of education: number of 3–12 year olds who don't go to school, number of 13–18 year olds who don't go to school
- mobility: perception of the roads and public transportation, quality of the public transportation
- material capital of the household: number of vehicles 5 years old or newer, number of home appliance pieces, number of cell phones, possessions of the household per stratum
- participation: proportion of voters in the household, knowledge of politics by the head of the household
- liberty and security: perception of the freedom to express oneself, liberty of moving from one neighborhood to another and of walking through the sidewalk and security

- vulnerability: overcrowding, children's nutrition, adults' nutrition, number of children, number of seniors of 70 or over, women as a head of the household, drop out rate the younger children aged 6–12 and of the older 13–18
- health: perception of the access to health services and their quality, percent of household members with paid system of healthcare and system of the household head
- work: working hours, economic charge of the household
- entertainment/free time: participation in sports activities, recreation and culture
- subjective perception of the life quality
- income: measured by spending per household member in the household[4]

As related to the definition and perception of what social sustainability is, the above list appears complex and exhaustive. What is specific for Medellín and other Colombian cities is a widely present factor of stratum (estrato); the imposed classification system coming from the type and quality of housing.

5 Gini Coefficient

The statistical measure of concentration/dispersion of a variable, is now used most frequently to represent the income distribution of a nation's/cities' residents. In case of Medellín it is also considered in the communities—split. This indicator is commonly used by UNDP analytics but also its limitations are understood; "the Gini Index is at best a partial indicator, and other measures will be needed to complete the picture of how levels of economic welfare are evolving in a society."[5] Anyway these limitations concern mostly cross-country comparisons and different data collection methods. They do not apply in the case of comparisons within one country (or city).

6 Human Development Index

The internationally acknowledged, widely used indicator created and improved by UNDP is mostly associated with cross-country comparisons. In Medellín it is monitored also in the split by communities which shows the universality of the tool.

Tab. 1. Measures used in Medellin's Development Plan's progress measure

	Rate of homicides	Multidimensional Indicator of life conditions	Gini Index	Human Development Index
Type of indicator	Objective	Subjective (declarations based)	Objective	Objective
Responsible for data collection	National Institute of Legal Medicine and Forensic Science (INML)	"Quality of Life Survey" National Administrative Department of Statistics (DANE)	"Continued study of households Income/(Expenditure/ Household Survey)" National Administrative Department of Statistics (DANE)	National Administrative Department of Planning
Content/ information	Public security, base for further reforms and development.	15 areas that determine the conditions of life (described in point B, above)	Inequality, segregation	Material aspects of the human well-being.

4. See: Elkin Castaño Vélez: "El indicador de condiciones de vida para la ciudad de Medellín", available at http://www.medellincomovamos.org/file/408/download/408&ei.

5. See: Division for Sustainable Development: Indicators of sustainable development: Framework and methodologies. Background Paper No. 3. Department of Economic and Social Affairs, Commission on Sustainable Development Ninth Session 16 - 27 April 2001, New York, available at http://www.un.org/esa/sustdev/csd/csd9_indi_bp3.pdf, p. 54.

In Medellín's Plan of Development these measures are not really combined, but monitored and interpreted rather separately (Lora and Powell 2012) which is a frequently formulated accusation. What is on the other hand worth mentioning is that the indicators' use is not only declared, but also indeed applied in monitoring and evaluation of the programs. After a plan which includes initial values of a certain indicator, there comes a report afterwards, which presents the shift. Also the way of reporting of these measures helps to meet an important social development objective: all of these scores are always reported split into communities and also frequently into rural vs. urban. This obviously is a key evidence of spatial segregation, marginalization and concentration of problems. But it also turns out to be helpful to define the target and evaluate the programs and policies.

Conclusions

Colombia, and Medellín specifically, show that Latin America is not necessarily so much behind Europe in terms of measuring social sustainability. Obviously, the good practices which are widespread in the developed world appear only in isolates, "isles," in Latin America. These "isles" can be looked at as clusters, which will then inspire, popularize and guide other cities (which already happens, see the case of the "Cómo Vamos" program).

It needs to be kept in mind that Latin America needs other indices and different weights than are used, for example, in Europe to answer its most nurturing problems and monitor its social development properly. This is though very likely that systematic control and the detailed guidelines of the Cómo Vamos program allow at least some comparability among Latin-American countries. I also believe that benchmarks should be of the local nature. However let's remember the key objective for running these studies: it is firstly monitoring the effectiveness of the programs, reforms; it is supporting policy-makers with data about the progress. The indicators rise from the ground of issues, which in Latin America might be more evident than other parts of the world. The international comparability is only a further objective of these studies. The focus of scientists should be put rather on internal consistency and relevance: to make the numbers reflect the real issues and to ensure that weights used resemble real importance. While general guidelines and methodological discussions, as well as construction of the theories should be discussed globally, it might be beneficial to apply the measures purely locally, at the same level that the policies are applied. This is because social sustainability is a process and progress, which is measured as a change/shift. These changes should be measured where the respective objectives are formulated. The level of the (big) city seems to be the very convenient and proper one to be the basis of measuring social sustainability.

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