

Non-transparency in real estate markets - graphical solution in the standard ground value map: case study of the district Pedra Branca, Palhoça SC

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Resumo: A planta de valores genéricos atualizada é uma importante ferramenta para os órgãos tributadores dos municípios, uma vez que estes necessitam estar permanentemente atualizados. Um problema recente nos mercados imobiliários é a especulação imobiliária, causada pela não-transparência destes mercados. Contudo, com uma base de informação boa, ou seja, transparente, pode-se dar às cidades a possibilidade de reagir contra uma crise, contra os efeitos do pânico derivado da queda nos preços ou contra a especulação imobiliária. Uma maneira possível para se melhorar a transparência é a inclusão, neste mapa, de informações sobre valores antigos e atuais, número de transações e a apresentação visual das áreas com especulação imobiliária em cores. Assim, a visualização destas áreas além de dar mais transparência aos mercados imobiliários e aos seus participantes, também apóia os departamentos dos municípios para um desenvolvimento sustentável e para a redução do risco de especulação imobiliária.

Palavras chaves: Planta de valores genéricos, especulação imobiliária, transparência.

Abstract: The Standard Ground Value Map is an important tool for municipal taxation. An updating is always necessary. The real estate speculation is a recent problem with is caused by a non-transparency on the property markets. Only a good base of information, what means, transparency, gives the city the possibility to react in crisis, panics and real estate speculations. A possible way to give transparency is to include in this map information about the old and updated values, number of transactions and the visualization of real estate speculation. A visualization of a real estate speculation in the Standard Ground Value Map can give more transparency into the property markets, to their partners, supports the departments for a sustainable development of cities and to minimize the risk of a real estate speculation.

Keywords: Standard Ground Value Map, real estate speculation, transparency.

1 Introduction

The Standard Ground Value Map is basically well known. The problems of the actualization of the Standard Ground Value Map are not new, but until now have not been resolved. For a sustainable development of cities, it is necessary to actualize this map every year, as papers and scientific work have demonstrated in the past, like Averbeck (2003) and Weise and Francisco (2006).

Weise and Francisco (2006) confirm that an annual update of the Standard Ground Value Map is necessary, because the values may increase significantly within one year. The result will be fewer taxes for the municipality. Until now, the tax-situation and the possibility to get higher taxes have been the main reasons for updating the Standard Ground Value Map.

In recent time, "real estate speculation" is one of the most frequently used terms, and the concerns about falling property prices, economic depressions, credit crises and their economical results are very high. That is the reasons why cities must take a deeper look on the property markets.

The best way for them is to have a better data base of price changes in real estates and to give more information about the development of these markets and sub-markets. The instrument for this should be the Standard Ground Value Map.

That is why the target of this work is to demonstrate, what is a real estate speculation, how it will be possible to show where in the city area there have been big price changes within last 12 months, like real estate speculations, and how information about real estate speculation could be implicated in the Standard Ground Value Map.

2 Methodology

This paper is an indirect survey carried out through a documental procedure in a form of a bibliographic research and theoretic study (VERGARA, 2005). Its primary aim is to describe what is real estate speculation and their limits to other forms of price increasing, etc. It is an application, mainly with sight to characterize and describe (VERGARA, 2005) its possibilities of use the information about real estate speculation in the Standard Ground Value Map. Beyond the primary objective, with this exclusively based approach on information about the speculation in the property market and the possibilities of using the Standard Ground Value Map give to the cities a new tool to resolve the problem of non-transparency.

Furthermore, this investigation is justified by the growing interest of investors and municipality to receive more information about the property market and the problematic areas in the city that means areas with an extreme price increase and price cutting of properties.

Therefore this case study shows how can be used the Standard Ground Value Map to give more information for the municipally tax collection, for the future development on the land utilization plan, about the real estate markets und their development and finally how necessary is an yearly update of the Standard Ground Value Map

3 Real estate speculation

This chapter gives firstly the basic information about real estate speculation, and then a definition based on the characteristics of properties, over the situation of stable and unstable prices and the limits of speculation as well as a definition of real estate speculation. Finally in this sub-chapter considers the non-transparency and the lack on information.

3.1 Basics

The speculation was already known since around 2000 years ago. The word speculation has his origins in Latin *spec* that means "looking" (Kanitz, 2003), but also *speculum*, "mirror", or in Latin *speculari*, which means "peek" and "observe". The speculation of the land was already important in the politics of the kings. Over time the number of people, witch are speculating, is always increasing. Today, there exist four different types of speculation:

- In common a statement not approved;

- Philosophical Thought (philosophical speculation) (Geiger, 1964);
- Definition of literature (fiction) (Hahn; Iwoleit; Mommers, 2002), and
- Possibilities for investments and short-term profit (speculation economic).

The first three types of speculation will not be addressed in the work, because the results of real estate speculation are possible to approve and do not have a relationship with the scientific or philosophical thought with the concepts of literature. So, will be addressed only the economic speculation, considering the speculation property as a part of economic speculation.

Stucken (1956) articulates that the economic speculation includes extensive on the side of the exact speculation in the following cases:

- A) Purchase early or delayed respectively may lead to the increase or decrease in the volume of purchases by consumers;
- B) Investment activities early or delayed respectively may lead to the increase or decrease in the volume of investments by producer and negotiator, and
- C) Swap of exchange early or delayed by the exporter and importer.

An accurate speculation occurs when there are goods, capital and other objects being purchased (sold), and that a later time again are sold (purchased) in this transaction was accomplished only because of a change in price expected, not because someone really wanted the benefits of ownership of these objects (Kaldor, 1939).

The speculation may be defined differently (Aschinger, 2001), the aspiration of profit of the holding motivated by differences between prices and expected time of a well in a particular market. This definition already includes many of the definition above.

3.2 Definition of real estate speculation

To define property speculation is necessary firstly to call the characteristics of real estates, than limits of speculation to define in the end of this sub-chapter real estate speculation.

3.2.1 Characteristics of properties

The characteristics of the properties are different in many aspects, for example legal characteristic, economic characteristics. For this work, will be considered only speculation in urban area, to visualize it in the Standard Ground Value Map.

Do not know of any country that has a legal definition for the term property (Schulte, et al., 2000). Already in Brazil, the property and land are synonymous words. Moreover, the terrain as well as the surface, direct territorial, vegetation and buildings, are legally determined by the Law of Registration (Brazil, 1973) and the Civil Code (Brazil, 2002). The Law of register was established for all public registers in Brazil. But the register of real estates is a part of this law.

A deeper discussion on this matter will not be performed in this paper because the problems related to these concepts are legal, and not part of the objectives of this work.

Economically, a property is a closed place that has the function of generating benefits (Murfeld et al, 2006). A property can also be defined as a resource that generates benefits to its owner. The thing property has the characteristics of immobility, heterogeneity, long-term planning and project development, and, ultimately, longevity. The characteristic of immobility is crucial in the classification of a property. The disparity of the elements real estate about the characteristics indicates the heterogeneity.

A property market is an aggregation of many sub-markets. All sub-markets are developed different, usually in cycles, with great differences in time with complex transactions and ultimately much longer until its completion, different from the product markets.

The dispersion of sub-markets, spatial heterogeneity and the distance leads to a non-transparent and the inefficiency of markets, conform to Sailer and Bach (2006). The transparency increased in the market with new media such as Internet and auctions. But that does not mean that the market is perfect and the government has the opportunity to give more transparency to the real estate market, by Standard Ground

Value Map, see more in chapter 5.

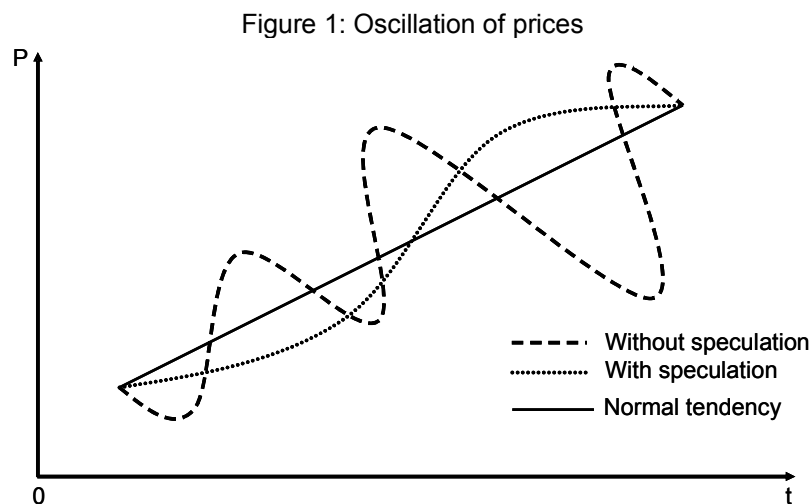
For a seller and buyers each property is usually a high initial investment joined with a long investment decision. With this decision there is a great uncertainty about the future and investment. In case of need to react take much time with high costs of transaction. For the location of the land there could be more legal restrictions such as the land utilization plan.

Especially for buyers, the non-transparency of the market and uncertainty about the decisions of greater importance. That's because the product is hardly replaceable and a division of the property (land) is limited.

3.2.2 Speculation with stable prices and unstable prices

In literature and research on the influence of speculation for prices, it encounters the speculation with stable prices and unstable prices.

The speculation of stable price is defined as the reduction of oscillation of prices resulting from speculative activities. However, the stability of the price can be understood as stability of the market. This definition comes from a non-participant in the market speculator, for various purchases and sales and creates more or less fluctuation in the prices, so there is a trend of the market sustainable, as can be seen in Figure 1.



The speculative participant's in the market reduces the amplitude and / or frequency of the cycle of non-speculative prices. In a given period, it can talk that the speculative activity during this time has been stable for the price (Meade, 1951; Farrel, 1966).

Already contrary, the speculation creates a unstable moment an economic crisis, usually in the capital market, and signifies in many cases a economical loss, as you can see the crisis of property claims in the United States in 2007 (BBC, 2007; BBC1, 2007).

3.2.3 Limits of speculation

Not always if it is an increase in property prices it is a speculation. Scientifically, there is talk about speculation in the case where the price of the property rises above a specified value as normal, which does not reflect the need to have this property. To determine the cases of property speculation needs to be delineated by the non-speculative life cycle of real estates and in the crisis.

3.2.3.1 Life cycle of properties

The real estate speculation is part of the life cycle of properties. Becker (2006) wrote that the real estate cycle exists continuously and during all phases of cycles have happens speculation. Because the life cycles of different types of real estates and market (phase of the development until destruction of the property) can occur at all phases speculation, witch means in the beginning of exploding of a real estate bubble (falling

real estate prices) can properties may be under construction or in planning (Wernecke; Rottke, 2006).

3.2.3.2 Crisis

Not all speculations are dangerous to the market. Crises, panics and crash's are exaggerated reactions of the market (Kindleberger, 1996). Mello and Spolador (2004) argue that at the end of each speculation happen a crisis and a crash. Galbraith (1992) states that embedded in a situation of speculative mania are a future and inevitable fall in prices and the fall can be smooth or gradual. As an example of gradual decline can be used the property market of London in the years 2003 until today. So not all speculations are crisis, panic or crash at the end.

3.2.4 Definition of work

Respecting and including what has been written in this chapter, the real estate speculation can be defined as: a phenomenon which occurs in all parts of property life and it is present in the property market where groups looking for motivated exploitation of profits in a time period around 5 to 10 years.

3.3. Non-transparency and lack on information

The main problem of the real estate markets is the lack of transparency and information about himself. Planning and construction need a long time period. Also the business as well as buying and selling can have a longer period like a half or one year, depend on the property and the market situation.

On the capital market everyone see at the same time the results of transactions and changes in prices. Until now, transparency in the real estate market does not exist. The best instrument for governments and town halls for supply information about this market is the standard ground value map.

Papers like Weise and Hornburg (2005) had shown that for an identification of real estate speculation is necessary to observe several factors, like price development, inflation, interest rate, number of transactions, income, etc. Only the price development and the number of transactions are important are important for future disquisition.

4 Standard Ground Value Map

The Standard Ground Value Map is a municipal tool with different aspects. Therefore first of all some basics, then the creation of a model and the necessary valuation of properties to get finally to the advantages of a updating and using a Standard Ground Value Map.

4.1 Basics

Standard Ground Value Map are a map of the urban area and / or area of expansion in the city, where they are affixed on each side of the urban, the basic values of squares meters of land due homogenized in their attributes, even temporarily, given technical criteria and uniform throughout the city. The objective of the standard values of the property is basis for the calculation of the Land Tax and the Transfer Tax of Real Estate (Emplasa *apud* Averbeck, 2003).

The Standard Ground Value Map consists of a graphical document and often also tabulated, representing the spatial distribution of mean values of the property in each region of the city, usually presented in face of court. Its main function is to allow the definition of a policy of property taxation that is fair and has equity. Actually has a second function to report on the real situation in the property market and to support the valuation of real estates.

4.2 Model e valuation

The model for evaluation of the property is a base for the creating of the Standard Ground Value Map, with explanation of the conditions of applicability and the parameters that must be observed. For model means

the representation of technical reality (ABNT, 2004).

The amount being sought in the assessment is the market value. This value is defined in the Standard Evaluation of Assets - NBR 14653 (ABNT, 2004) as "most likely by the amount which it voluntarily and consciously negotiate an asset at a date of reference, within the current market conditions."

Averbeck (2003) explains that the process of evaluation of properties for the preparation of a Standard Ground Value Map requires the understanding of the basic characteristics of the population and real estates in the city, so that the adopted model allows the valuation of all the properties, except exceptions, because at the end due will get the individual value of each property.

The creation of the model is depends on the used methods of valuation. The ABNT (2004) gives there some alternatives like the method comparative of depreciated replacement cost. The choice of the model is depend on the sample of used data, the quality of the researched information, the type of contained information in the land register, the ability of the valuator and available resources like time, team, used software and disposable information. Adds it is also the aspect of public defense and social responsibility before the various segments of society, which constitute success in the debates and demonstrations of how the model works.

The Standard Ground Value Map also described as valuation in bulk are maps of the urban area that present the values per square meter of land with or without constructions, block by block (Zancan, 1996). For the valuation in bulk exists to two major aspects of techniques for valuation:

- A classic, which uses the homogenization empirical modeling of factors, such devoted, normally applied the same were in different cities and reality of the market (Möller, 1995), and
- Of statistical inference, that extracts of the local reality the rule of creating the price of the property and usually is based on scientific methodology in the evaluation process (Peruzzo Trivelloni, 2005).

For the definition of the valuation model are essential tests of hypotheses, analyses of the waste (*resíduos*), the estimation of intervals and the interpretation of the true meaning of the obtained results. The use of actual events of the market that means recent occurred transactions, which did not participate in the sample for modeling, it may be interesting to measure the responses of the model and its validation.

The homogeneous areas are established mainly from the study of the use and occupation of land and the planning legislation. The areas of valuation are established from the study of the property market and often coincide with the areas of homogeneous use of land. But it is very often not a coincidence full, because within a homogeneous area may exist public roads with commercial attractiveness that cause significant change in the prices of property. There may also exist within the same area of homogeneous use of land, poles of devaluation that change the price of the property to trim.

It is usual to divide the areas of valuation in the middle of the court, in the bottom line of the lots, because the front of the public street has strong influence in value. The inattention to that point, common in small cities, now distort values and tax injustice. Variations of the significant value in the same public roads often require new homogeneous areas every court, every segment of the street.

The spatially vision of the value is very important for the definition of the areas of valuation (or sectors, sections of common floor area with same value, one side of a block etc.). The use of geo-reference data and analysis of influence of the distance from poles of value enhancement or poles of devaluation leads to safer results, which may waive the division into areas of valuation.

High variations in values (case of real estate speculation) in the property market in time bring difficulties to the property taxation as the models for valuation, the areas of valuation and the values of face of court are maintained over time, until the next appraisalment, and are to be removed from the reality of the market.

The monitoring of developments in the real estate market will be a key issue for the larger cities, where the issues involving the market value are more frequent. The development of new models of valuation and re-valuation of the areas are essential to achieving the fair taxation of the various real estate taxes.

The Standard Ground Value Map define the basic values of the property that means a rule per unit area (R\$ / m), which will be used for an individual valuation. For both the information to the individual valuation must be composed of the land register, make evident that the valuation should occur on the updated land register.

According to Esteio (2004), the stages of development of a PVG are: analysis of the database cadastral; definition of the plant reference cadastral; collecting data; definitions of variables; calculations and analyses.

4.3 Advantages

The organization of PVG actual market may benefit the municipalities in various ways favouring (Vieira et al., 2002):

- A tax justice;
- The processes of expropriation;
- The normalization of the property market; and
- Training criterion for recovery of contribution of improvement.

Besides the tax issue, it should be emphasized that the PVG is also a tool for planning municipal, to the extent that reflects the rate of valuation of property and provides therefore regulation the action of the municipal government regarding the use and occupation of land (Machado, 2006).

It is essential then that the fundamental characteristics of the property and its location for the valuation can be extracted from the land register automatically. In the process of updating the land register and the general map of values can be interesting embed information in the land register of those important for the valuation and for the better understanding of the property market.

5. Visualization of real estate speculation in the Standard Ground Value Map

The base for the following disquisitions is a permanent that means a yearly update of the Standard Ground Value Map. Vieira et al. (2002) said already that it is necessary for a tax justice, normalization of the property market and so on. The mayor has not many possibilities to regulate the real estate markets. The best way for regulation is a good information data. An actual Standard Ground Value Map is a first step. To receive this, it is a easy way collecting the transaction contracts in the city, with all information, about, price, location and qualities of the sold real estate.

A second step is to give more information to investors, owners, bancs, other departments in this city etc. A best possibility to give more transparency into the real estate market is by using a Standard Ground Value Map and a report. The report includes a lot of statistics about the sold properties and prices.

A big importance has also the map. Historically a Standard Ground Value Map includes only the actual prices, but says nothing about the development on the market. That's why, it is necessary to include in this map more information, as it shows in figure 2. This information are:

- Actual and old price;
- Number of transactions; and
- Price increasing.

With these basic information in the map and accompanying report, can provide greater transparency to the property market through the reduction of misinformation. The location of speculation areas can located easily as well as area with price reduction.

6. Case study: Pedra Branca

6.1 Area of Study

The city of Palhoça is located around 15 km from the coast between Florianópolis and Serra do Mar. Her access is the freeways BR-101. As if all the beauty and calm of Palhoça is not enough, Pedra Branca is around 18 kilometers far away of Florianópolis, capital of Santa Catarina. The population of Palhoça counts around 122,471 people and the land area of 395 km² (IBGE, 2008). The study area is within the city of Palhoça, better to say in the district University City - Pedra Branca and is only five minutes from the centre of Palhoça far away.

The district Pedra Branca is distributed in three parts A, B and C. Only for the parts B and C exist currently lots are on sale. Until now, it is not possible to assess the part A. The city hall of Palhoça established the areas zones, 222 to 232 for the district Pedra Branca. To make this comparison of two years it was necessary to collect a larger number of possible samples in this district and compare this data with the data of the city. This sample represents approximately 15% of the property of district Pedra Branca. Totally was more than 300 information of the market validated and used in the analysis and modeling statistics.

For every areas homogeneous was estimated the unit value of the land by analyses of that information. It is represent a consistent uniformity in all localities of the district in relation to market values. The evaluation was done to each area zone with a land paradigm.

6.2 Determination of Paradigm Property

To initiate the valuation by regression, the following characteristics were used to the terrain paradigm, presented in table 1:

Table 1 – Terrain paradigm

Nature	Topograph y	Pedology	Form	Designed Front	equivalent Depth	Area	...
supply	plan	dry	regular	15	30	450	...

The samples by the areas were analyzed of statistical regression. The value of the analysis of the area 222 follows:

- R-squared adjusted: 0.999997857 → relationship is perfect
- F, meaning: 1.45756 E-09 → Grade III (NBR 14653-2, item 7)
- P-value: 0.001299 → Grade III (NBR 14653-2, item 7)
- Land Paradigm: R\$ / m² 169.53

The value of land paradigm of the area 222 is: **R\$ / m² 169.53**.

Table 2 presents the final results of the regression made in relation to the values of the municipality of Palhoça. The valuation of the area 232 could not be done because was not any transaction. In other areas were valued and represent a big difference between the valued values and the values of the municipality. The differences are between 36% and 66%.

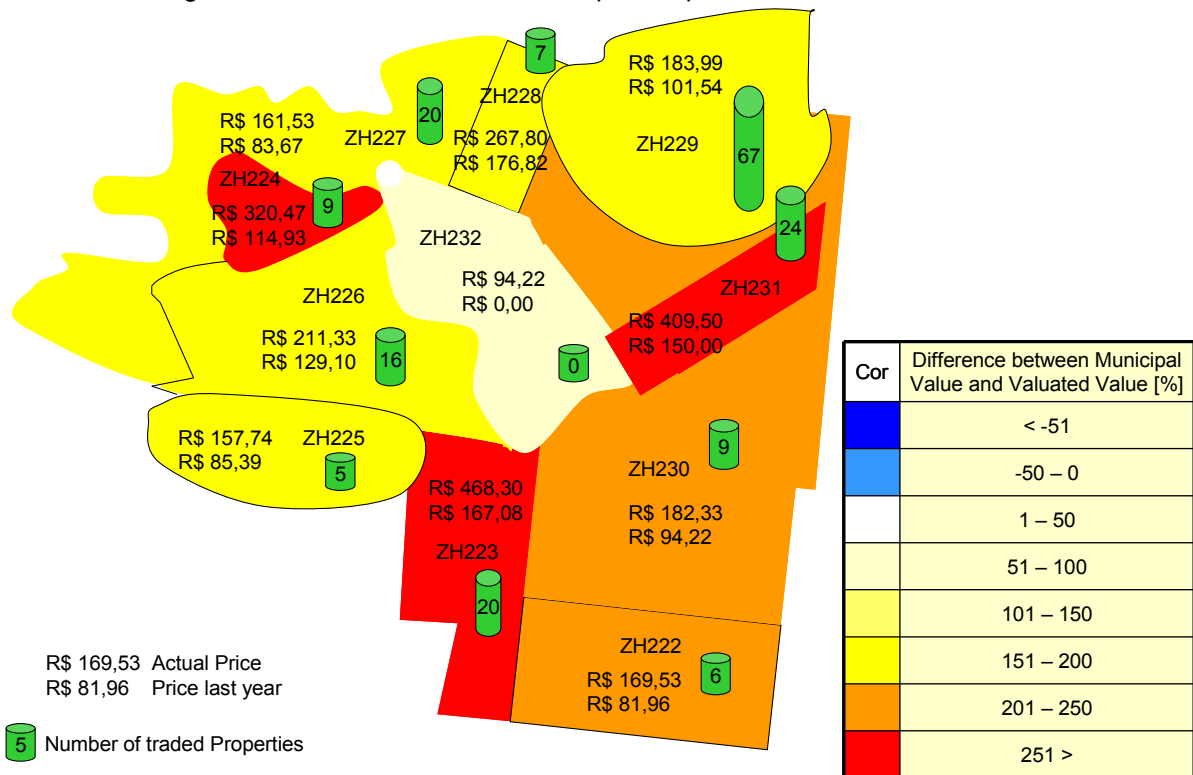
Table 2 – Result of the difference between municipal and assessed value

Areas	Traded Properties	Municipal Value [R\$/m ²]	Valuated Value [R\$/m ²]	Difference between Municipal Value and Valuated Value [%]
ZH222	6	81,96	169,53	206,8442
ZH 223	20	167,08	468,30	280,2870
ZH 224	9	114,93	320,47	278,8393
ZH 225	5	85,39	157,74	184,7286
ZH 226	16	129,10	211,33	163,6923
ZH 227	20	83,67	161,53	193,0528
ZH 228	7	176,82	267,80	151,4535
ZH 229	67	101,54	183,99	181,1957
ZH 230	9	94,22	190,78	202,4831
ZH 231	24	150,00	409,50	273,0000
ZH 232	0	94,22	university	

The follow-up figure presents the final Standard Ground Value Map com information about real estate speculation. This map gives a better orientation about the development on the property markets, by using the actual (updated) and old (non-updated) prices. The high of the green cylinder say something about the number of traded real estates and the color of the areas tells how risky in terms of property speculation this area is.

For a better visualization is it better to put behind the Standard Ground Value Map normal geographical map.

Figure 2: Standard Ground Value Map with speculations information into it



Conclusion

The Standard Ground Value Map is a very good used tool by municipal especially for taxation. The main problem is until now the yearly updating of them. An updated Standard Ground Value Map can give lot information to the several departments over the development of the property markets.

The property market has a big importance for the municipally taxation directly and indirectly. That's why it is important to observe them. Only a good base of information, what means, transparency, give the city the possibility to react in crisis, panics and real estate speculations. Property speculations are in the recent times often heard around the globe, as well as Brazil.

The Standard Ground Value Map is a fantastic tool, if this map includes more information in it, as it was presented. The visualization of speculation in this map over number of transactions, the old and actual value per m² and the demonstrating in color, show easily, where the departments have to take a look or to influence. In this way the Standard Ground Value Map can give more transparency into the property markets, supports the departments for a sustainable development of cities and to minimize the risk of a real estate speculation.

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