

## Analysis on Financial Consequences of Spatial Decisions: Framework and Case Studies

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### 1 ABSTRACT

A large number of policy decisions at both the spatial and other policy departments have an effect on the financial value of an individual property. In the current society the economic crisis and the debate about the position of governments have changed the conditions for spatial policies and realization of real estate projects. Arguing about the financial impact of spatial policy decisions is more than ever relevant.

In 2014 the Flemish spatial development department initiated a research on financial consequences of spatial decisions for private owners and on the actual performance of existing financial compensation mechanisms. The study also defined and operationalized the concept of real estate value and made an in-depth analysis of thirteen cases and their impact on the total real estate value within a defined time period. The cases used a wide variation of financial valuation techniques (comparative method, hedonic method, capitalization rental income, residual value method).

The cases illustrate that the current compensation mechanisms in Flanders are mainly focused on the 'zoning' of properties. Changes to generic regulations or changes to the floor space of a property (e.g. limit/increase number of floors) have also significant effects on the real estate value but are not captured within the actual regulations.

Flanders intends to implement these new insights on financial impacts of spatial development and planning in the new Spatial Policy Plan. Increasing spatial efficiency and further exploring and harmonizing compensation mechanisms are two major challenges.

### 2 INTRODUCTION

A large number of policy decisions at spatial and other policy departments have an effect on the financial value of an individual property. In the current society the economic crisis and the debate about the position of governments have changed the conditions for spatial policies and realization of real estate projects. Arguing about the financial impact of spatial policy decisions is more than ever relevant.

Spatial planning policy in Flanders, as in many West European countries, intervenes in the development possibilities of land. In the context of an initially Belgian spatial planning policy, area-covering regional plans have been approved since the 1970s which stipulate the allocation of land and make a distinction between land that can be built on and land that has an open spatial allocation (Albrechts & Meuris, 2000; Liekens, 2012). Existing built-up areas were hereby largely confirmed, and in addition generous expansion possibilities were provided for new housing, industrial estates, roads, etc. Regional plans in Flanders created a stock market, specifically for residential building (Frank Vastmans, de Vries, & Buyst, 2011). Economically this market functions in a different way from supply markets in countries with less strict spatial planning policies. In the years following the approval of the regional plans, various schemes were moreover developed which allowed development on land that, according to the regional plan, wasn't initially meant for development (see 'fill-in scheme', 'waiting wall scheme', 'mini decree', etc.) (Desmet, 2012). As a consequence of these spatial and political decisions, Flanders became an extremely fragmented area with specific problems such as traffic noise, an ever-increasing number of vehicle movements, lack of ground water infiltration, etc (Coppens et al., 2014).

The government quickly realised that these zoning plans had a financial impact that could not be overestimated. In 1962 they installed a mechanism to compensate financial losses from private owners who were disadvantaged by a change in zonation (Albrechts & Meuris, 2000; Hubeau, Defoort, Debersaques, & Vandevyvere, 2012; Liekens, 2012). More recently, in the decree amendment of 1999 (Departement RWO, 2009), the plan income charge was introduced. This is a taxation on the added value created by a change in zoning plans (Hubeau et al., 2012) and applies to plans approved after 1 September 2009.

For years, the absence of a plan income charge meant that the government was under pressure to approve expansion plans, which directly resulted in profits for the owners involved.

The spatial planning system in Flanders is, however, not limited to determining the allocation of land. Since the reconstruction in the wake of the First World War, there have been other instruments that determine the future development of land (Hubeau et al., 2012). These are instruments that give the government a role in determining the (size of) the programme and ancillary conditions for development and layout, important for safeguarding spatial, environmental, economical and social quality. Examples are the building permit (including a permit to change the parcellation), and different types of zoning plans (Albrechts & Meuris, 2000; Hubeau et al., 2012; Liekens, 2012). These instruments raise or lower the value from a parcel, that one can expect based on the initial zoning typology. Specifying, for example, the maximum building height or a minimum percentage of unpaved space. No compensation mechanism has been developed for this, neither for taxing the added value nor for compensating the loss in value. The absence of effective compensation mechanisms means that when several owners develop an area together, the costs and benefits are badly divided. Such lopsided divisions form the basis for many cases brought to court against governmental spatial planning decisions. Ultimately, many projects are never implemented. At the same time, these financial discussions between owners frequently impede the actual mission of spatial planning: creating a social added value by ensuring high spatial quality.

The global economic context and the more specific policy context in Flanders resulted in a study assignment from the Flemish government. In 2014 the Flemish spatial development department initiated a study on the financial consequences of spatial decisions regarding private owners and into the actual performance of the existing financial compensation systems in Flanders (Dugernier, De Nocker, Broeckx, & Bosmans, 2014). The ultimate intention, but for this a follow-up study is necessary, is to achieve a clear policy framework from which policy concepts can be developed for arrangements between owners from parcels with added or reduced value.

The research questions dealt with in this paper are:

- Which elements determine the economic value of a parcel? How can we estimate / calculate the value of a property?
- How and why does this value evolves during time in different cases? Are there any financial compensations involved?
- What can we learn from this situation? How can we adapt the planning system to this financial context?

The various study questions will be answered in this paper. Part 3 of the paper shows how the financial value of projects is determined. The following chapter is a summary of the case study. Three cases were studied: a change of allocation from agriculture land to natural area, a residential project and a brownfield development. Finally, these concrete cases were related to the Flemish planning system and a system was sought for monitoring various events. This analysis finally leads to a number of conclusions and recommendations for the Flemish government, which is currently reworking both its planning system and the content of spatial planning. Setting up a monitoring of value gain and reduction and aligning existing compensation systems are important building bricks in this.

### 3 ESTIMATION OF ECONOMIC VALUES

The fair economic value of a parcel is the unbiased estimate of the potential market price of this parcel, if it was to be sold on a good working market between two independent and well informed parties (IASB, 2014). In this case, price will reflect the economic value of the current use of the parcel and of alternative legitimate uses. More restrictions and conditions for future land uses and programs will increase risks for potential investors and lower economic value. The economic value will depend on (Sirmans, MacDonald, Macpherson, & Zietz, 2006; Visser & Van Dam, 2006; Kroll & Cray, 2010; Damen, Vastmans, & Buyst, 2014)

- (1) current land uses (natural areas, agriculture, residential, industry),
- (2) characteristics of the specific uses (e.g. crops, type of buildings, m<sup>2</sup> floor area),
- (3) construction costs and adaptation costs ,

- (4) perception of the market parties for potential land uses, programs and related risks,
- (5) location of the parcel and characteristics of the surroundings (functional, landscape),
- (6) macro-economic factors (income, expected inflation, interest rate, tax systems ).

Spatial policies may affect the factors 1 to 4. Factors 5 and 6 indicate that the impact of a spatial policy measure is likely to be location- and time-specific (context). The assessment of the impact of spatial policies requires the comparison of the economic value of a parcel in the reference situation (= current situation) and the policy scenario. As a change in economic value depends on various elements, the assessment requires a detailed, location and context specific assessment, and assumptions on how the new opportunities or restrictions created by the spatial policy measure can affect the program on a parcel. Consequently, the impact of spatial policy measures is assessed based on case studies, that illustrate mechanisms and their relative importance. These cases use a generic approach based on the best available data for each case.

The first best method is to build on a hedonic studies that estimate the impact from spatial policy measures and regulations on market price for real estate. In Flanders there is only research available on the impact of legal status for land use destination (agricultural versus natural area) on the market price for land. This method is used in the first case study. For other cases, the generic approach is based on the residual method for real estate appraisal, that estimates the value of the land on the net income that can be generated on the parcel with a specific program, and the expected return on investment, given macro-economic conditions and specific opportunities and risks (Uittenbogaard & Vos, 1996). For residential or industrial use, we can estimate this value by the gross income from renting floor space minus all building and other costs. The data (gross income per m<sup>2</sup> floor space and building costs) are based on studies of market prices and are discussed in case studies 2 and 3.

## 4 VALUE ANALYSIS IN DIFFERENT CASES

### 4.1 Case 1: changing land use destination from agriculture to natural area

#### 4.1.1 Description of the case

In this case study, we look at a spatial zoning plan (RUP) that changes land use destination from agriculture to natural area in a small river valley east of Brussels. The parcels can be used for agriculture, but the change in zoning can lead to additional restrictions and obligations for the users, either immediately or in the future. This will affect the economic return of agricultural activities on these parcels and limits future potential uses. It has been observed in Flanders that this change in legal status lowers the market price of agricultural land. Consequently, the law foresees in a financial compensation for the landowner to compensate this loss ('kapitaalschade'). In addition, a compensation for the users of the parcels is foreseen, depending on additional restrictions for the users. As impacts and financial compensations can differ for different parcels within the same project area, we focus on a specific parcel of 0,3 ha, a typical size for that area.

#### 4.1.2 Methods, data and assumptions

The size of the compensation depends on the expected impact on the market value of the land, which is estimated following a specific methodology, discussed below. Second, there are additional criteria to be met, e.g. related to a minimum size of parcels affected per landowner (0,5 ha).

The impact on the market value of the parcel is based on a site specific hedonic study by the Flemish Land Agency, that accounts for the agricultural value for that location (e.g. related to soil quality) and parcel specific characteristics (e.g. size and shape) (Vlaamse Landmaatschappij, 2014). Based on data for local market transactions for land used for agriculture, this study estimates how the legal status of the parcels (agriculture versus natural area) affects the market price. For this project area, it is estimated that a change of destination from agriculture to natural area lowers market prices with 17 % or – given current market prices for that region – 0,65 €/m<sup>2</sup>. In addition, the study estimates the use value of the parcels, which is expressed as a % related to a best case situation, and estimates that a 1 % decrease in use value lowers market prices with 0,012 €/m<sup>2</sup>. Furthermore, it is estimated that for the selected parcel, the use value will decline from 80 % to 24%, which results in a loss of market value of 0,66 €/m<sup>2</sup>. The total impact of the spatial planning project for this parcel is a decline in value from 12 k€ to 8,1k€, or a loss of 3,9 k€ (see table 1).

As the selected parcel is 0,3 ha, the landowner will only receive compensation if (s)he owns other parcels within the same project area. In that case, the maximum compensation is set at 80 % of the estimated loss of market value, or 3,1 k€ for the selected parcel.

#### 4.1.3 Results and conclusions

This case study illustrates that the market value of agricultural land is affected by spatial policies, irrespective of its actual use. Although the compensation mechanism is based on sound theoretical studies and local data, a full compensation is not guaranteed, due to specific provisions.

	Before plan (ref) Land use destination Agriculture	After plan Land use destination Natural area
(1) Market value parcel 0,3 ha (k€)	12	8,1
(2) Change in market value (k€)		-3,9
(3) Compensations (k€)		
Min		0
Max ( 80 % )		3,1
(4) Change for landowner, after comp. (k€)		
Min		- 3,9
Max		-0,8

Table 1: Impact of change in land use destination from agriculture to natural land on market prices and compensations for land owner, data for case study for selected parcel.

(1) Data for selected parcel of 0,3 ha, based on VLM, 2014.

(2) Estimated impact on market price (= price before plan – price after plan)

(3) Compensations for landowner as foreseen in law 27-03-2009 (kapitaal schade regeling)

## 4.2 Case 2 affecting the building program in residential zones

### 4.2.1 Description of the case

In this case study we look at a change in spatial policies that give greater flexibility to landowners regarding the program that can be built in a residential zone. Spatial planning regulates the maximum size and height of buildings in residential areas. In general, the number of floors is limited to 2 (not counting the attic or basement floors). In the Brussels Periphery, where older buildings have often more floors, a specific provision allows up to 4 floors. The case study looks at a small vacant parcel (270 m<sup>2</sup>) in a nice residential area with higher buildings (4 to 5 floors) in the urban fringe. We examine the impact of the greater flexibility from 2 (reference) to 4 floors (policy scenario). This allows the creation of an additional apartment of 125 m<sup>2</sup> floor space in this building, as illustrated in the application for a building permit for this parcel.

### 4.2.2 Methods, data and assumptions

The economic value in the two scenario's is based on the residual value method and we use a low and high estimate. Gross income is based on simulations of expected rents for houses and apartments using a tool developed for the Flemish government ([www.huurschatter.be](http://www.huurschatter.be)) and based on the hedonic study from Vastmans (Frank Vastmans, Helgers, & Buyst, 2012). The simulation accounts for the exact location of the building and the most relevant characteristics. Building costs are based on a simulation using a web-based tool ([www.paulvanwelden.be](http://www.paulvanwelden.be)) and data on building costs ([www.aspen-index.be](http://www.aspen-index.be)). The driving factors in this tool are m<sup>2</sup> living area, level of completion, type of building and quality of construction and workmanship and are based on unit costs for the building sector in Flanders. Costs are independent of location, and indicate an uncertainty +/-10%. We use a simplified residual value approach, assuming 12 months of rent and no maintenance costs and we account for local and national taxes on real estate but not the fiscal incentives. We estimate the current value of future rents using a discount rate (required return on investment) of 3% and 4 %. This reflects the current macro-economic conditions with low mortgage rates and inflation, high fiscal incentives and the perception of real estate as low-risk investment (Damen et al., 2014). To validate our approach and data, we compare the outcomes (€/m<sup>2</sup> land) with the market prices for vacant land plots in that community. The simulated values of land plots fall within the 15 % range of the Q75 indicator for recent market prices (2010-2014) for vacant land plots in that community (economie, 2014).

### 4.2.3 Results

In this case a general rule (2 instead of 4 floors) leads to a doubling of rentable floor size, and as the local market appreciates this type of small apartments as high as single family houses, total gross income doubles.

Compared to a single family house, a building with two apartments implies costs savings and additional costs, that, in this case and our assumptions, compensate each other. As a result, the residual value of the parcel increases with 50 % to 100 %, depending on assumptions. It is expected that this increase in value will be reflected in market prices. This extra value for the landowner, is not subject to specific taxes on surplus value (apart from the generic 12 % sales tax (registration taxes)).

Steps in the analysis		Reference scenario 2 floors		Policy scenario 4 floors	
		low	High	low	High
1	Floor space (m <sup>2</sup> )	125	125	250	250
2	Rent (€/year/m <sup>2</sup> )	5,9	8,6	7,1	8,6
3	Gross income (k€/year)	8	12	20	24
4	Discount rate	3%	3%	4%	3%
5	Current value future rents (k€)	266	393	484	787
6	Building costs (k€)	-163	-201	-325	-401
7	Residual value parcel (k€)	92	172	142	344
8	(€/m <sup>2</sup> )	341	637	525	1.275
Change in value				Additional value	
For parcel (k€)				50	172
€/m <sup>2</sup>				185	637
%				54 %	100 %

Table 2: Impact of program flexibility (4 floors) on economic value of residential land (k€)

(1) based on building plans for the parcel and own assumptions

(2) based on simulations using huurschatter.be for that parcel (hedonic analysis)

(3) Gross income for renting family house (ref) or 2 apartments (policy scenario), accounting for floor space, rent and taxes on rateable value of real estate

(5) Current value of future rents, using a 3 % and 4 % discount rate (for policy scenario).

(6) based on simulations tool for cost calculations paulvanwellen.be

(7) residual value of the parcel, based on (3) and (4) and 12 % sales tax (registration tax)

(8) parcel size = 270 m<sup>2</sup>

### 4.3 Case 3: brown field development

#### 4.3.1 Description of the case

The third case looks into impacts of potential land uses and programs in the case of a brownfield development. A former industrial site of 4 ha is partly affected by groundwater pollution and soil pollution. The site is located in a rural area, nearby the river Scheldt (see figure 1). The policy scenario covers 5 alternative types of land use and programs, including residential use (with high and low density), industrial use (small and medium size enterprises (SME) and waterfront industries (Waterind)) and a combination of land uses (Maring et al., 2015). The paper does not focus on costs of remediation.



Fig. 1: Example of two land use scenario's (residential (low density) and SME ) (Maring, 2015)

#### 4.3.2 Methods, data and assumptions

We use the same generic method as for case 2 with different data for each specific context and use. It has to be noted that the rent per m<sup>2</sup> is lower for this rural location compared to case study 2 (urban fringe). The costs in the residential scenario include additional costs for the development of the site: grey infrastructure (streets, parking) and green infrastructure (small parks). Costs are based on key figures for typical projects in Flanders (STADIM, 2008). Rents and building costs for the SME-scenario are based on literature studies (International, 2006). Land lots for waterfront industries in Flanders are not sold but rented out by water

management agencies in long term contracts. In this context, development costs of the site are for the tenant but we account for the 80 % subsidy given to the tenant for the construction of quays. As development on industrial land involves public partners to promote economic activities, it is appropriate to use the social discount rate of 4 %, in line with recommendations of the Flemish government. To ease comparison, we use the same discount rate for the residential and mixed scenario. We only report average values, calculated as the average of the low and high estimates.

#### 4.3.3 Results

Table 3 lists the data and results for the 5 alternatives. The residential scenario's offer more floor space, which is rented out at a higher rent compared to the industrial scenario's. Although it requires higher investments, including those for green infrastructure on the site, the net income is higher. Excluding remediation costs, the net value varies a factor four between scenario's (from 30 €/m<sup>2</sup> to 120 €/m<sup>2</sup>). These values per m<sup>2</sup> are lower compared to case study 2, also for residential uses. This is due to lower rents (rural location), lower density (m<sup>2</sup> floor space/m<sup>2</sup> project area) and costs for grey and green infrastructure.

These results can further be compared with costs for remediation, estimated at 12 million € (before subsidy for remediation) to 1.8 million € (after subsidy) (Maring, 2015). It shows that only scenario's that maximize residential floor area would generate enough income to pay for full remediation costs. Most scenario's would be able to generate enough money for remediation after government subsidy, but for industrial scenario's the net value of the land would become very low.

The case study illustrates the complexities involved in brownfield development and shows that a common understanding of the elements that contribute to income and costs can contribute to a common understanding of potential land uses and programs.

Indicator	Unit	Residential		Industry		Mix
		High 1	Low 2	SME 3	WaterInd 4	Mix 5
Land uses						
m <sup>2</sup> floor area	1000 m <sup>2</sup>	18	14	13	21*	11
Grey infrastructure	1000 m <sup>2</sup>	30	30	13	21*	26
Green infrastructure	1000 m <sup>2</sup>	4	4	16	14	8
Gross income						
m <sup>2</sup> floor area *	1000 m <sup>2</sup>	18	14	13	21*	11
Rent €/year/m <sup>2</sup>	€/m <sup>2</sup>	5,9	5,9	3,3	4,5	5,6
Total rent year	k€/year	1.288	952	507	94	663
Current Value future rents (4 %)	million €	32	24	13	2	18
Costs						
Building costs	million €	26	19	7,6	0,57	14
Grey infrastructure	million €	0,5	0,5	2,4	-	1,2
Green infrastructure	million €	0,9	0,9	0,4	0,6	0,8
Total costs	million €	27	21	10	1,2	16
Net income	million €	5,0	3,3	2,3	1,2	2,0
	€/m <sup>2</sup>	120	79	55	29	48

Table 3: Impact of different land uses and programs on economic value in brownfield redevelopment case

\* m<sup>2</sup> floor area for waterfront industry is building and grey infrastructure

## 5 PROPERTY VALUE AND COMPENSATION MECHANISMS IN RELATIONSHIP TO THE FLEMISH PLANNING SYSTEM

The cases illustrate that the property value of a certain object or plot is not constant throughout time, which is logical since the property value is dependent on evolving factors such as allocation, building costs, risks, etc. (see 3. Estimation of economic values). Each of these factors can change through decisions that are taken by both government and private persons. Legislation and regulations drawn up by the government have an impact on environmental factors and/or development rights, and the resulting value of land and buildings. Decisions in building permits, certain architectural choices or initiatives for selling land, are generally initiated by private individuals but equally determine the property value.

Generally there are various parties involved and/or affected by spatial decisions. Owners can change, owners may or may not be able to make use of the land or goods concerned themselves, owners can set the property fo rent or make a lease agreement, etc. In addition, an owner may or may not act as developer and so, de facto, achieve and/or exploit the change in value. This interaction between the parties involved (government

and private individuals, owners and users) can give rise to mutual ‘transfers’ linked to a change in value for the property concerned, resulting in added or reduced value for the parties involved.

A first category of spatial events is taking generic decisions ‘by a government’: drawing up generic rules for spatial planning. The generic rules clarify who sets the rules, who assesses them and how the information about the rules is distributed. Generic means that they are applicable everywhere, the rule is in itself the same for all of Flanders.

The clearest example of this is the “basic right for constructions not conform to regional urban planning guidelines ”: the existing function of a building has priority over the attributed functions within a zoning plan, ‘badly zoned constructions’ can receive a permanent building permit. A permitted dwelling is valued financially in a different way from a non-permitted dwelling: a permitted dwelling in an agricultural area has quite a few generic extension possibilities and has a high financial value (notwithstanding the fact that it is located in an area in which residential use is not confirmed in the allocation plan).

A second category of spatial events with an effect on property values is an area-driven policy initiated by the government. The vision of the desired development of an area is translated into laws that only apply for a part of the land area and that are stipulated in spatial implementation plans, regulations, parcelling and building line plans. The plans stipulate where infrastructure will be laid, where and how many buildings can be built and where green should be provided. The value of building land depends to a very large degree on building regulations (Ryckewaert and Vastmans, 2011). The number of buildings that may be built on a plot of land helps determine the value offered by the land. An important principle is creating area-driven spatial quality. The scenarios of the brownfield covenant (case 3) illustrate the effect of different programmes on the property value of the project, and thus the feasibility within specific financial parameters. These regulatory plans influence at the same time the possibilities of the developer but also his risks.

The third category of spatial events is assessing actual projects. A developer applies for a permit or certificate and the government decides whether this project satisfies the rules or not (or only under certain conditions). The moment the permit is provided, the decision is taken and the programme becomes irreversible (if the decision is not contested) and uncertainties cease to exist. From that moment, there is clarity about burdens and conditions and where they are located.

Implementations and environmental factors can be changed by government and private partners and are very difficult to estimate. The image and thus the financial value of neighbourhoods changes, building prices rise, new roads and parks are laid by government, etc. Spatial planning should thereby acknowledge that factors outside its authority play an important role in the impact on real estate values as well. In the long term it is the borrowing capacity of households that determines house prices. This borrowing capacity is explained by income evolutions, long-term interest rates, housing taxes, mortgage markets and tax legislations (Frank Vastmans, Buyst, Helgers, & Damen, 2014). The dynamics of the mortgage market and building land play thus an important role in the real estate market (Ryckewaert & Vastmans, 2011).

The moment of a property-transfer (whether between governments or between private persons) is the moment that the market determines a price, based on known data, flexibility, risks and (un)certainities. Decisions with impact on the property value are often spread over a longer period, and are only sporadically – and either simultaneously or otherwise – explicit via transfer of property. Often added value or reduction remain invisible until they are nailed down at transfer of property or change of use. A distinction can be made between the momentum of a decision that causes a change in value, and the moment at which there is actual effectuation (and possible compensation) of added or reduced value. This momentum cannot really be situated in the spatial policy, but largely in the implementation of this policy or the transfer of property of land and buildings. It could be interesting for a private owner to consciously not place land on the market, speculating on a further increase of its value in the future. This is why in practice there is often a discrepancy between the potential use value (i.e. building land) on the one hand, and the factual current use value on the other (i.e. plot in agricultural use).

The dispersion of compensation instruments through time is today not balanced. There are only a number of clear compensation mechanisms for changes in value linked to reallocation and area-driven policy, while there are none for generic policy. It is also striking that the available instruments for compensating value reductions – certainly from the sectoral policy – far outnumber those for taxing added value. Furthermore,

spatial instruments, sectoral instruments and financial policies are only partly integrated, which makes it very difficult to evaluate whether reallocation mechanisms are effective or not.

## 6 CONCLUSIONS AND RECOMMENDATIONS

A large number of spatial decisions have an impact on property value and thus on assets of individuals, companies and public authorities. Examples are situated in different stages of the property chain: Changes in generic legislation, area-driven policy and reallocations, issuing of building permits, effective realisation of real estate projects, actual use and transfer of property etc.

Cases illustrate (the evolution of) the property value of certain projects. The Flemish government has a number of mechanisms to compensate value reduction for private persons, but mechanisms for taxing added values are rare. Existing mechanisms do not, however, capture the complete value addition or reduction and are not always linked to the moment of value creation or reduction. They are mainly based on changes in the zonation. Changes in general legislation or in the finalised project proposal are at least equally important and also generate an added or reduced value at a certain moment in time but are not now understood. Case studies indicate that it is in fact this time aspect that has an important impact on total property value. The taxing mechanisms should therefore be aligned to the moments of decisions resulting in an added or reduced value (i.e. when the actual programme is known, whether or not the number of storeys has been changed, etc.) and not so much to the moment of the change in zonation.

A central recommendation is that policy makers within spatial planning and outside it must at least try to be aware of the possible financial consequences of their choices. Data are not always available or can only be estimated, but comparison of various alternatives or proposals should at least include some financial consequences of spatial planning decisions. Governments should enlarge their knowledge of project development and real estate valuation, in order to create more negotiating power and better policy making.

Property valuation and uniform estimation methods are not easy to implement by public authorities, despite the large demand for standardization. Case studies show that the influence of policy decisions on property value is complex and that the government has limited means to budget these elements. A plea for the development of calculation instruments that take into account this complexity is appropriate. Important parameters are: the exact moment of value creation, the geographic dispersion of property values in Flanders and the net present value of future cash flows from a property. A systematic monitoring of changes in property values is needed and is only possible with an update of current land registry incomes and by using the area-covering database with building permits.

The Flemish government is working on a harmonisation of its compensation mechanisms: both the Flemish government (Vlaamse Regering, 2014) and the authorised minister (Vlaams minister van Omgeving Natuur en Landbouw - Schauvliege, 2014) (Policy paper Minister of Environment 2014-2019) have the intention to issue a global instrument decree which will include an evaluation of the existing mechanisms. The development and evaluation of compensation mechanisms forces spatial planners to look beyond their own area of expertise. Spatial planners should expand their financial and real estate knowledge in order to estimate the consequences of spatial planning more accurately. The research presented in this paper supplies crucial insights.

In addition to optimisation of instruments, a general and more fundamental renewal of spatial policy in Flanders is on its way. On 4 May 2012, the Flemish government approved the Green Paper of the Spatial Policy Plan (Vlaamse Overheid, 2012). Its key ambition is to realise the necessary spatial developments for our social needs in a sustainable way. Future developments respect the limits of growth and contribute to the liveability of society and find the right balance between economic, sociocultural and ecological aspects with respect for the capacity of the space. Negative aspects of further asphaltting (more traffic congestion, flooding, heat stress, drying out, loss of productive open space and a less healthy living environment, etc.) will be addressed in an innovative and participative spatial policy. Insights from this study will be considered in the operationalization process.

The Spatial Development Department (Ruimte Vlaanderen) is, at the moment, carrying out follow-up research into the 'development of financial arguments for intensification of the built area and protection of the open space and into financial redistribution mechanisms for spatial planning (between towns, cities and governmental partners).



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