

SUSTAINABLE URBAN PLANNING FROM AN ECONOMIC AND FINANCIAL PERSPECTIVE

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Abstract *In this communication are reported the assumptions, methodology, outcomes and conclusions of a research carried out within the scope of the revision of the Land, Territorial Ordinance and Urbanism Act, currently under way in Portugal. This is a deep revision, and it points out the importance of the economic and financial sustainability of urban development operations for municipalities.*

Land values rise as a result of territorial planning decisions. Thus a planned public intervention is required in order to assure these surplus values are allocated for the population's social interest. Despite the existence of different kinds of land policies, the fiscal-based ones affect the most the market and land uses, and may substantially influence planning goals' achievement. Land taxation aims at assuring a source of income to public administration; redistributing welfare so to grant land its social function; giving back to society the land surplus values that accrue from planning decisions and public investments; and increasing the provision of land for urban development.

In order to recover part of the surplus values engendered by urban planning decisions, herein is proposed a new territorial management instrument, applied at the Municipal level. It consists in charging a 20% fee on the land value increase (surplus-value) that accrues from concrete building capacity/m² assigned by plans to specific urban interventions. This fee will, later on, be used by the municipality on behalf of social purposes. The current proposal is applied, as a case study, to the Urban Development Plan of the Planning Unit 11 of the municipality of Lagoa, located in the Algarve (Portugal). The methodology pursued in the current study consists in the computation of the building capacity/m², and of the surplus values and corresponding 20% fee that accrue from the establishment of that plan, to be charged to promoters and builders, in order to recover part of their unearned increments. This innovative territorial management instrument strengthens municipal's economic and financial sustainability, clears up the origins and applications of municipal funds, and ensures that the surplus values engendered by plans are pointed to social purposes and not to specific private interests.

The application of this urban fee may be easily extended to other municipalities, as it is founded on information and methodologies that stand inter-municipal comparisons. Besides, this kind of study supports municipal decisions on both urban development and economic-financial issues, in an integrated and sustainable way.

1. THEORETICAL FRAMEWORK

1.1. Revision of the legislation on territorial ordering and urban development

All the legislation concerning land, territorial ordering and urban development is currently underway in Portugal. The new Portuguese Land Territorial Ordinance and Urbanism Act (Lei nº 31/2014), linked together with the revision of the juridical regime of Territorial Management Instruments, the juridical regime of Urbanization and Edification, and the new Cadastral Law intends to surmount some drawbacks and inconsistencies that accrued from the previous legislation, on the one hand, and to contribute to the structural reform of the state in these matters, on the other. In fact, the previously enforced legislation revealed hard to apply and often contradictory especially due to different complex plans that overlapped on the same territories (that harmed the clearness of applicable rules), the existence of different individual territorial plans and urban development models specific to each municipality (that hampered the sustainable planning organization and the integrated development), and from the planning model grounded on the spatial urban spreading (that was unable to restrain the quick spread of expectant land) [1].

One of the core innovative goals of this new paradigm sets that urban plans and programs should include an economic and financial sustainability model. This means that they should only be approved are they able to engender incomes equal or higher that the charges they will involve.

1.2. Fiscal land policies

Decisions concerning planning definition and implementation, as well as some land market flaws, may lead to socially unacceptable land uses and forms of urban development. Thus planning interventions are required in order to surmount those imperfections, namely through land policies. These policies may express through the straight control over urban development, through the fiscal control over urban development, or through the general influence over urban development [2]. From these three different kinds of policies, the fiscal measures – that convey the influences over the general or specific urban development of places and uses through taxation devices – are the ones that most affect land market and uses, and may substantially influence the achievement of planning goals. Besides, their efficiency may be assessed through the consequences they bring about to urban development planning and funding [3].

Land taxation goals sum up as: to assure a source of income to public administration (such as other taxes); to redistribute wealth in order to fulfil the land social function, promoting equity and shrinking inequalities; to give back to society land surplus values accrued by planning decisions and public investments; and to increase the supply of urban development land [3].

But the efficiency of land taxation instruments must ground on objective parameters that ensure a common reference for owners and valuers. This system should support equal treatment of owners, thus guiding surplus values that accrue from planning decisions or public investments to the general social interest.

Within this scope, the current article proposes and reports in detail the technical study of a new fiscal instrument of land policy that fits the economic and financial model of urban plans and programs, settled in the new Land Territorial Ordinance and Urbanism Act. It proposes that part of the surplus values engendered by planning decisions concerning the allocation of concrete building capacities (computed from the parameters settled in the Municipal Master Plan, Urban Development Plans, Detail Plans, parcelling out procedures, or other territorial management instruments) should be recovered.

Once implemented, this new territorial management instrument will foster the economic and financial Municipal sustainability, through the identification of the origins and applications of funds from urban development processes; a clear and objective assessment and a fair collection of land surplus values derived from planning decisions; and an increased balance in the distribution of development costs and benefits among the population within a certain municipality, assuring that surplus values accrued by urban operations are clearly reckoned and allocated on behalf of population's general social interest.

The overall result will consubstantiate into the reduction of land maximum values and control over speculation, neither turning into a fiscal aggravation for most population, nor into an increase in building costs [4;5]. Thus, the redistribution of urban development costs and benefits between the state and private stakeholders will become clear, and a fair justice will be assured within each municipality [4].

2. METHODOLOGY

The proposal herein presented consists in the following methodological steps: (a) assessment of the concrete building capacity/m² assigned to the different planning and management operational sub-units and respective uses in the urban intervention area, according to applicable ordering plans; (b) computation of the average costs/m² with urban infrastructures' execution, maintenance and reinforcement, of the average construction costs/m², and of the corresponding land value/m² (according to market trade) in the municipality under analysis; (c) computation of the municipal land value/m² according to the Real Estate Municipal Tax Code; (d) assessment of the surplus values/m², given by the difference between the land values/m² computed in the two previous steps; (e) valuation of the concrete building capacities/m² by land surplus values/m² of buildable land assigned to urban uses; (f) computation of the potential collectable value that accrue from the application of this new territorial management instrument (20% fee on the previous value); and (g) final conclusions and additional reflections.

The concrete average building capacity/m² represents the gross built surface (expressed in m²) allowed by the enforced territorial planning instruments by m² of land in a certain execution unit, intervention area or urban development operation. It is computed through the quotient between the sum total of surfaces where urban parameters of different planning toolsⁱ apply (according to respective kinds of uses), multiplied by corresponding

ⁱ Urban Development Plans, Detail Plans, or parcelling out procedures.

occupation and use indexesⁱⁱ, weighted by the percentage assigned to each kind of use in relation to the total buildable intervention surface.

The surplus values/m² are assessed through the difference between the average municipal land price/m² computed according to town property trade and corresponding land price/m² computed according to the Real Estate Municipal Tax Code. The total amount of surplus values result from the product between the surplus values/m² and the corresponding gross built surfaces, summed to the whole plots of the urban intervention, for all the anticipated uses.

Finally, the potential collectable value deriving from the application of this new territorial management instrument corresponds to a 20% fee on the previously computed value.

3. CASE STUDY

3.1. Brief characterization of the Municipality Lagoa

The municipality of Lagoa locates in the district of Faro. It is bound in the west by the municipality of Portimão, in the northeast by the municipality of Silves, and in the south by the Atlantic Ocean (Figure 1). It has a population of 22 791 inhabitants, in spans a surface of 88,3 km², and is made up by the parishes of Estômbar, Ferragudo, Lagoa, Porches, Carvoeiro and Parchal.



Figure 1. Municipality of Lagoa (Algarve).

The economic tertiary sector is prevalent in this municipality (84,8%), whereas the secondary sector is responsible for 14,0% and the primary sector for 1,2%. of employment. The employment in the tertiary sector in this municipality is even higher than their homologous values in the Algarve (82,5%) and in continental Portugal (65,3%) [6].

The planning territorial instruments enforced in the municipality of Lagoa are: the Municipal Master Plan of Lagoa (RCM n° 29/94; Aviso n° 26197/2008; Aviso n° 3872/2012); the Urban Development Plan of the Planning Unit 1 – UP 1 from Ferragudo to Calvário (RCM n° 126/99; Edital 613/2009); the Urban Development Plan of the Touristic Capacity Area of the Planning Unit 12 - UP 12 (Declaração n° 56/2008); the Urban Development Plan of the Planning Unit 11 - UP 11 (Aviso n° 44845/2008); the Urban Development Plan of the Town of Lagoa (Aviso n°11622/2008); the Ordering Plan of the seashore of Burgau-Vilamoura

ⁱⁱ Occupation indexes represent the quotient between the implantation surface and the land surface (expressed in %), and land use indexes represent the quotient between the total gross built surface and the land surface (expressed in m²/m² of land).

(RCM n° 33/99); the Regional Plan of Territorial Ordering PROT - Algarve (RCM n° 102/2007; RCM n° 188/2007); the Plan of the Hydrological Basin of the Algarve Streams (DR 12/2002); the Regional Plan of Forest Ordering (PROF) of Algarve (DR n° 17/2006); the Natura 2000 Network (RCM n° 115-A/2008); the Partial suspension of the Regional Forest Ordering Plan (PROF) of Algarve (Portaria n° 78/2013); the Management Plan of the Hydrological Basins that take part in the Hydrological Basin 8 (RH8) – PGBH of the Algarve Streams (RCM n° 16-E/2013).

3.1.1. Municipal Master Plan of Lagoa

The Municipal Master Plan of Lagoa (RCM n° 29/94) (that encompasses the whole municipal surface) settles as main goals: to implement a territorial ordering policy that warrants a social and economic balanced development; to settle principles and rules for land use occupation and occupation changes aimed at rational uses of spaces; and to promote a judicious resource management, safeguarding the natural and cultural heritage of the municipality, and ensuring its population higher patterns of life quality.

The existent built-up urban areas are made up by the urban developed and developable zones delimited in the ordering plan: Lagoa; Estômbar; Porches; Aldeia de Luís Francisco; Ferragudo; Corgos; Bela Vista; Parchal; Mexilhoeira da Carregaçã; Pateiro; Calvário; Carvoeiro; Poço Partido; Sobral; and Torrinha. The surfaces within the municipality of Lagoa liable to land use changes are delimited within the planning and management operational unitsⁱⁱⁱ UP 1, UP 2; UP 3; UP 4; UP 8; and UP 9.

The land parcelling out operations located in urban developable areas assigned to public equipment and facilities, and aimed at urban growth should be preceded by Urban Development or Detail Plans.

The touristic occupation areas are made up by the surfaces effectively occupied by touristic undertakings or similar buildings (approved by the proper public entities), and also by the interstitial areas that, provided their aptitude, become assigned to buildings and other touristic-oriented undertakings. The correspondent planning units^{iv} are UP 7, UP 10, and UP 13.

The Touristic Capacity Areas include the Touristic Development Nuclei located and delimited within the planning and management operational units UP 5, UP 6, UP 11 and UP 12^v. They are regarded as non-developable areas until the approval of Touristic Development Nuclei, thus adopting the land use, occupation and transformation regime settled in the ordering and conditioning plans, and in the Regulation of the Municipal Master Plan of

ⁱⁱⁱ These planning and management operational units locate, respectively, in Ferragudo, Corgos, Bela Vista, Parchal, Mexilhoeira da Carregaçã, Pateiro and Calvário (UP1); Estômbar (UP2); Lagoa (UP3); Porches (UP4); Carvoeiro (UP8), and Poço Partido (UP9).

^{iv} These planning and management operational units locate, respectively, between Lageal and Carvoeiro (UP7); between Carvoeiro and Alfanfina (UP10); and between Vale do Engenho and the East limit of Lagoa municipality (UP13).

^v These planning and management operational units locate, respectively, between Vale da Areia and Ponta do Altar (UP5), between Caneiros beach and Lageal (UP6), between Alfanfina and Caramujeira (UP11), and between Caramujeira and Senhora da Rocha (UP 12).

Lagoa. The Touristic Development Nuclei should occupy up to 25% of the Touristic Capacity Areas.

The implementation of the Touristic Development Nuclei should conform with the following rules: these nuclei mustn't integrate parks or natural reserve land surfaces; the proposed undertakings should vest high quality and touristic interest, and be complemented with leisure facilities; the proposed undertakings should be exclusively targeted to touristic uses; the environmental areas mustn't include uses or occupations incompatible with high-quality tourism; the undertakings should support internal infrastructure costs and links with municipal infrastructure, and take part in general systems' costs; each Touristic Development Nucleus may include one or more undertakings, although they should be linked together with a network of infrastructures; each nucleus can be developed in a land parcel or plot, or in a set of land parcels or plots that belong to the same Touristic Capacity Area.

3.1.2. Urban Development Plan of the Planning Unit 11

The Urban Development Plan of the Planning Unit 11 (UP 11) (Aviso nº 44845/2008) is enforced in the whole intervention area of this operational unit, defined in the Municipal Master Plan of Lagoa as a Touristic Capacity Area (AAT), which can lodge one or more Touristic Development Nuclei (NDT). This intervention area spans a surface of about 401,6 hectares and locates in the stretch of the seashore between Marinha beach and Cabo Carvoeiro, within the parishes of Lagoa and Carvoeiro, in the municipality of Lagoa.

The general goals of this Urban Development Plan consist in settling land occupation, use and transformation in respective intervention areas, and of the correspondent building regime (namely through the definition of urban operations projects' regulations: parcelling out procedures, construction of touristic undertakings, infrastructure, buildings and outside spaces' works).

The specific goals, by their turn, consist in developing and accomplishing the Touristic Capacity Area of UP 11, given that the Urban Development Plan delimits two Touristic Development Nuclei (NDT): East NDT and West NDT that should observe the ecological structure, and the natural, cultural and landscape values.

Land belonging to the intervention area of UP 11 can be classified as urban land (that encompasses developed land and land which urban development may be programmed) and rural land. Developed urban land covers the urban and touristic-urban areas outside the Touristic Development Nuclei settled in the Municipal Master Plan of Lagoa, and includes the consolidated urban area of Benagil; the touristic-urban area located north of Carvalho beach (Clube Atlântico); and both touristic-urban areas near Alfanzina, the most extensive at north and the other at south. The building regime in the areas classified as developed land where parcelling out operations are enforced is guided by the regulation reported in respective building licence. Land which urban development may be programmed covers the new touristic areas, entirely located inside either Touristic Development Nucleus East NDT and West NDT: the land surface which urban development may be programmed mustn't surpass 30% of the value of the total surface of the Touristic Development Nuclei; the East Touristic Development Nucleus covers a planning and management operational unit that structures into

N1 and N2 planning and management operational sub-units; the West Touristic Development Nucleus covers a planning and management operational unit that structures into P1 and P2 planning and management operational sub-units.

All the undertakings assigned to land which urban development may be programed concerning each Touristic Development Nucleus must fit four-star or higher category. The maximum number of beds to assign to touristic uses is 1 720 in both Touristic Development Nuclei, what corresponds to a maximum of 1 279 beds located in The East Touristic Development Nuclei, and a maximum of 441 beds located in the West Touristic Development Nuclei.

As far as the building capacity is concerned: in land which urban development may be programed in the surface covered by the Ordering Plan of the seashore of Burgau-Vilamoura (RCM nº 33/99), only buildings assigned to hotels and/or further touristic facilities are allowed (except for the surface depicted in the zoning plan as “*nonaedificandi*” area in the East NDT, where buildings are forbidden); the land building regime in land which urban development may be programed located in Touristic Development Nuclei observes the precepts enforced to respective planning and management operational sub-units, according to the classifications allowed in touristic undertakings.

Two execution units are settled in order to implement the Urban Development Plan UP 11 – East NDT and West NDT -, according to the current specific characteristics of land occupation and environment, mastered by the need to subscribe concrete planning and management solutions guided to its preservation or transformation. The sum total of the surfaces assigned to both Touristic Development Nuclei (997 737 m²) mustn't exceed 25% of the whole surface of UP 11 settled in the Municipal Master Plan of Lagoa (4 016 158 m²): indeed East NDT's surface amounts to 741 890 m² and West NDT's surface to 255 847 m².

3.2. Computation of a 20% fee on Planning Unit 11's surplus values

In order to compute the annual gross built surface in the municipality of Lagoa, statistical data was first collected concerning the total number of finished buildings (corresponding either to new construction, and buildings' enlargement, changes or reconstruction) for a four-year period^{vi} [6; 7; 8; 9]. The total gross built surface (expressed in m²) was, then, estimated for developed and developable urban land (6), given by the product between the total number of finished buildings (1), and the average liveable surface per housing building (Table 1). This average gross built surface is computed through the product between the average number of storeys per building (2), the average number of dwellings per storey (3), the average number of compartments per dwelling (4), and the average liveable surface per compartment (5) (expressed in m²). The total gross built surface results from the division of the total average liveable surface by 0,65 (considering that, on average, the livable surface represents around 65% of the gross surface).

^{vi} The annual average number of finished buildings was computed based on data respecting the years 2008, 2009, 2010 and 2011 (the most recent data provided by the Portuguese Statistics Institute). This four-year period was considered in order to avoid situation's fluctuations.

	2008	2009	2010	2011	Total	Average
Total number of finished buildings (1)	228	137	114	64	543	136
Average number of storeys per building (2)	2,7	2,5	2,4	2,20	9,8	2,5
Average number of dwellings per storey (3)	1,2	1,6	0,7	0,50	4,0	1,0
Compartments per dwelling (number) (4)	4,3	4,4	5,5	5,80	20,0	5,0
Average liveable surface per compartment (m ²) (5)	17,3	17,5	19,8	21,6	76,2	19,1
Total gross built surface (m ²) (6)=(1)x(2)x(3)x(4)x(5)0,65	84.543,7	64.916,9	32.087,0	13.568,8	195.116	48.779

Table 1. Estimation of the annual gross built surface in the Municipality of Lagoa for 2008, 2009, 2010 and 2011, and corresponding annual average value.

The municipal average annual costs with infrastructures' execution, maintenance and reinforcement amounted to 705,2 €/m² (Table 2). They were computed according to the values listed in the municipal amortization and provision maps for 2009, 2010, 2011 and 2012 concerning assets within the public domain – other construction and urban infrastructure –, that amounted to an average annual value of 34 044 069 € [10].

Investments in urban infrastructures' execution, maintenance and reinforcement	2009	2010	2011	2012
Annual amortization of urban infrastructure (€)	26.399.063	31.439.028	36.570.644	41.767.542
Annual average investment (€)	34.044.069			
Annual average gross built surface (m ²)	48.278			
Infrastructure's cost (€/m ²)	705,2			

Table 2. Average investment/m² in urban infrastructures' execution, maintenance and reinforcement in the municipality of Lagoa.

The average municipal transaction value/m² (€/m²) in Lagoa Municipality (3) is determined (for each year under analysis) through the quotient between the annual value of the land property transactions (1) [6; 7; 8; 9] and the total gross built surface (2) (Table 3). The price of buildable land per m² according to market trade (6) is computed through the difference between the previous value (3) and the average construction costs/m² ^{vii}(4) and the average costs/m² with urban infrastructures' execution, maintenance and reinforcement (5).

	2008	2009	2010	2011
Total value of town property trade (€) (1)	101.687.923	92.541.438	93.778.000	103.169.000
Gross built surface (m ²) (2)	82.539,8	64.916,9	32.087,0	13.568,8
Transaction value/m ² (€/m ²) (3)=(1)/(2)	1.232,0	1.425,5	2.922,6	7.603,4
Construction costs/m ² (4)	482,4			
Urban infrastructure costs/m ² (5)	705,2			
Price of buildable land/m ² of construction (€/m ²) (6)=(3)-(4)-(5)	44,4	237,9	1.735,0	6.415,8

Table 3. Price of buildable land/m² in the municipality of Lagoa, in 2008, 2009, 2010 and 2011.

The price of buildable land/m² based on town property trade for each planning and management sub-operational unit and for each type of use within the Planning Unit 11 was assessed considering that respective contribution for the average municipal land price is proportional to the licensed gross built surface for profitable uses. The gross built surface assigned to profitable uses (m²) was first pointed out in each of the areas that constitute the municipality Lagoa (where different planning instruments are enforced and, among these,

^{vii} Settled in the governmental orders that render applicable the article 39th of the Real Estate Municipal Tax Code enforced in 2008, 2009, 2010 and 2011 (Portaria n° 16-A/2008; Portaria n° 1545/2008; Portaria n° 1456/2009; and Portaria n° 1330/2010, respectively.)

different urban indexes are applicable). Next, the product between the price of buildable land/m² and the net land use index/m² of land was reckoned. The share of the land price/m² ascribable to each of the studied areas each year results from the product of the previous value by the percentage that the gross built surface of each identified area represents in relation to the maximum gross built surface licensed in the urban developed and developable municipal areas. These partial totals are, then, summed for the whole studied areas for each year, leading to an average annual land value/m² based on town property market trade of 721,9 euros/m².

The parameters settled in the Real Estate Municipal Tax Code where, next, applied to each of the considered areas within the municipality of Lagoa. The average annual value of 56,1 euros/m² was found out based on corresponding values for 2008, 2009, 2010 and 2011.

The surplus values ascribable to each planning and management operational sub-unit and to each kind of land profitable touristic use was computed through the product between the homologous construction surface and the difference between the annual land price/m² based on market trade (721,9 €/m²) and the corresponding price based on the application of the Real Estate Municipal Tax Code to Lagoa municipality (56,1 €/m²) (Table 4). For the intervention area of this Development Plan, the proposed 20% fee aimed at social purposes' assignment - according to the methodology herein presented - amounts to 12 764 718 €.

Touristic undertakings		Land surface (m ²)	Gross built surface (m ²) (1)	Surplus values (€) (2)=(1)*665,8	20% of surplus values (€) (3)=0,2x(2)	
Planning and management operational sub-units	Classification					
Planning and management operational sub-unit East NDT	N.1	Lodging establishments (Hotels)	30.000	15.000	9.987.000	1.997.400
	N.2	Lodging establishments (Hotels, Serviced Flats ou Inns)	191.050	56.210	37.424.618	7.484.924
		Lodging complementary means (Holiday Villages)				
	Total (East NDT)		221.050	71.210	47.411.618	9.482.324
Planning and management operational sub-unit West NDT	P.1	Lodging establishments (Hotels)	10.000	5.000	3.329.000	665.800
	P.2	Lodging establishments (Hotels, Serviced Flats ou Inns)	66.754	19.650	13.082.970	2.616.594
		Lodging complementary means (Holiday Villages)				
	Total (West NDT)		76.754	24.650	16.411.970	3.282.394
Total values in the Planning Unit 11 (UP 11)		297.804	95.860	63.823.588	12.764.718	

Table 4. Average surplus values and corresponding 20% fee on these surplus values for all the planning and management operational sub-units and respective profitable touristic uses in the Planning Unit 11 of Lagoa.

4. CONCLUSIONS AND FINAL REFLECTIONS

This article justifies from an economic and financial standpoint, and applies to the development Plan of The Planning Unit 11, in Lagoa (Portugal), a new territorial management instrument – that consists in the collection of a 20% fee on surplus values accrued by plans and planning decisions [11].

Through the objective quantification of the concrete surplus values that derive from urban operations and from municipal planning decisions this new instrument, thus, supports the reinforcement of municipal finance and subsequent economic and financial sustainability; the clarification of the origins and applications of funds that accrue from urban development, and the allocation of these surplus values for the population's general social interest and not for

private-oriented specific interests. It seeks, above all, a fair equity among the whole population living in a certain Municipality, in what concerns the distribution of costs and benefits that accrue from urban development operations.

This new territorial management tool takes on a general character, and can be further applied to other municipalities and intervention areas of Municipal Master Plans, Urban Development Plans or Detail Plans, as it grounds on data and methodologies that support inter-municipal comparisons.

To sum up, it can be concluded that this new instrument – within the scope and goals of the new planning and territorial management paradigm, namely in what concerns the economic and financial sustainability and the promotion of equity and social cohesion - will substantially support the urban development and enhance populations' quality of life

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