

Economic and Social Effects of Urbanization - Case Study Analysis

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Abstract. The study focuses on the effects of uncontrolled urbanization and local investment planning on local economy and society. The first part covers literature review regarding economic and social effects of uncontrolled urbanization. The second part includes description of the investor and its financial situation. Afterwards, the property under development is described and three development plans are presented. Finally, the effectiveness evaluation is performed. The research is closed with summary and conclusions. Basic research methods include literature review, methods of comparison, logical concluding, and case study. Tools of financial and economic analysis have been used. Based on cost-benefit analysis (CBA), economic internal rate of return (ERR), economic net present value (ENPV) and benefits to costs ratio (B/C) were calculated. The assumptions for three options of development program meet conditions in terms of master planning but vary in terms of project effectiveness. Studying different solutions can help better management and anticipate results of different development programs for the local economy and society. Since the proposed framework supports investment evaluation from the perspective of society, it supports local municipal decision makers. The model may be also an example of how to evaluate economic and social results of local planning and may be used as a tool for effectiveness maximization.

Keywords: Urbanization · Development project · Municipality · Cost-benefit analysis

1 Introduction - Study Justification, Aim, Methodology

A city grows quantitatively and qualitatively. It can change functions of certain areas within the city itself or in its suburbs. Choosing the most efficient land use, providing the best possible level of services to inhabitants while retaining the high quality of the natural environment is a tool for optimization of urban space use and relates to the qualitative growth. Cities' growth requires then a redesign of the spatial layout, making decisions on the best possible way, and sequencing of city development. Moreover, without some capital investment connected with overcoming specific infrastructure barriers, further development might not be possible. The research is then justified by the recognition of several problems relating to local planning, land speculation, and real estate function impact on its value. Too little attention is paid to different possible uses

of land. In particular, local government should be a stabilizer of the real estate market and take proper action to determine the spatial development of the city through local plan approval. Otherwise, the city may suffer from uncontrolled urbanization and its negative effects. Thus the research fits within an existing trend of the studies relating urbanization, urban sprawl, and smart cities as a response for problems of big cities. It focuses on the effects of uncontrolled urbanization in particular and local investment planning on local economy and society. Yet, the analysis is conducted for relatively small municipality to point out that the mentioned problems of urbanization, urban sprawl and sustainable development are relevant also in that case.

The first part of the research covers brief literature review regarding economic and social effects of uncontrolled urbanization. Second part of research includes description of the investor and its financial situation determining project realization. Afterwards, the property under development is described and three development plans presented. Finally, the effectiveness evaluation of the project within its three options is performed. The research is closed with summary and conclusions.

Basic research methods include literature review, methods of comparison, logical concluding, and case study. Tools of financial and economic analysis has been used. Based on cost-benefit analysis (CBA), economic internal rate of return (ERR), economic net present value (ENPV) and benefits to costs ratio (B/C) were calculated for the three options of the project's development program. CBA is a conceptual framework to evaluate a project and determine its value from a social perspective. Therefore, CBA differs from a direct financial appraisal as it includes benefits and costs to society as a whole (external effects of the project). CBA has the same meaning as economic analysis. It reflects values which society would be willing to pay for a good or service which are not sold on a commercial market. Such aspects are characteristic mainly for public sector service [1]. Hence, economic analysis covers a wider range than financial analysis as external effects may relate to different spheres. If these results cannot be expressed in monetary values, evaluation of the effectiveness should include also qualitative part which is called descriptive for the unmeasurable results. CBA framework involves numerous stages of analysis: defining a alternatives, identification of stakeholders regarding their benefits and costs, calculation of effects and the choice of indicators, quantitative prediction of the effects, the introduction of monetary values for each type of effect, discounting of costs and benefits for the purpose of NPV (net present value) and IRR (internal rate of return), calculation of ENPV (economic net present value) and ERR (economic rate of return) for each of the alternatives, sensitivity analysis, and recommendation.

2 Uncontrolled Urbanization – Literature Review

In the long run, cities cannot fulfil their function as engines of social progress and economic growth unless social balance, ensuring cultural diversity and proper quality of urban design, architecture and environment is not maintained [2]. Cities need visions which are able to cope with their various and dynamic character. To achieve that cooperation of local actors is required, starting with the construction of new urban descriptions which able to propose new objectives and new projects, and to recognise

their changes and potentialities [3]. Urbanization applies both to change of the space and people [4]. It is a multi-faceted and extremely complex process which should be considered in several dimensions, including demographic, social, economic, spatial, and functional scopes [5]. Research on urbanization are important as number of cities and urban population grow in all countries of the world [6].

The urbanization process in Poland is legally and formally controlled, however the problem is that not all the participating entities want to use control tools, which results in the negative effects of urbanization [7] and eventually causes that urbanisation is uncontrolled. The most important negative effect of uncontrolled urbanization is spatial chaos which results from conflicts such as between the public and private sector interest [8]. It relates to inadequate social participation in the planning process, as well as the mismanagement of a public-private partnership.

The spatial chaos is directly related to the accidental relationship of housing and infrastructure. This causes difficulties in everyday life by restricting access to means of transport and isolation from social infrastructure services, which are generally located in city centres, or on the outskirts of the metropolis. It may contribute to the exclusions of less well-off inhabitants. It also means extra time getting to work – from housing developments outside the cities to the business centres, which significantly increases previously reduced costs of living. An important consequence of uncontrolled urbanization is then increase in time and cost of commuting.

Inefficient master planning relates to development of residential area. Many municipalities bear (or will bear in the future) huge costs for land re-purchase for roads and technical infrastructure in areas that have been significantly overestimated in the relation to needs of the housing area. The revenues from fees planning are often lost as well. It is a result of speculations on the real estate market. The profits skip the municipality budget and goes to landowners. This phenomenon does not occur in developed countries, where the majority of income that are created by planning, goes to the budgets of municipalities and is used to financing local development [7].

The costs of destruction of housing and infrastructure costs can be also included to negative effects of uncontrolled urbanisation. This applies particularly to areas at risk of flooding and landslides, were an investment is a result of incorrect location decisions, sometimes in violation of applicable law.

Proper planning should limit construction and maintenance costs of the technical infrastructure, while chaotic and scattered layout increases the cost of sewerage systems, water supply, gas, heating, telecommunications, energy, traffic, and lighting. The increase in costs is also generated by excessive amount of small schools, kindergartens, hospitals, where costs are significantly higher than in large institutions. Moreover, human resources are inefficiently used [9].

Finally, the instability of planning, function, and potential localization difficulties increase investment risk and discourage foreign investors. Uncontrolled urbanization creates ‘speculative bubble’ where prices of land are not linked with good location or infrastructure, but connected with the conviction that eventually all agricultural land is converted into development land of higher value and price. The final effect is that the municipality has to purchase agricultural land for the public investment at market prices, which is significantly overvalued.

The final cost and general development of spatial chaos is a factor of low competitiveness of the municipalities and barrier for investors while master planning should support promoting competitiveness, social and territorial cohesion in Europe and in its cities, and regions [10].

3 The Case Study Analysis

3.1 The Municipality and Its Financial Situation

The Municipality, where the area under development is located, is placed in the centre of low-lying landscape in the north of Poland. The surrounding area is characterised by the lack of natural hills and high level of ground waters. A national road, which is a part of the international route, connects the Municipality with the regional capital city (40 km). Traffic results from regional and national transport aiming warehouses and logistics cents, and high-traffic passenger cars relate to both tourist and business destination in the regional capital city. The main branch of the economy in the Municipality is agriculture and agrotourism. Agriculture land, meadows and pastures are over 80 % of the land in the Municipality. The area is dominated by a very fertile soil, growing wheat, sugar beet, barley, potatoes and oilseed rape. There are also many dairy farms. The average size of farms in the Municipality is much larger than the national average yet agriculture activity in the Municipality constitute only of about 3 % of 1.4 thousand registered entities (while transport and construction is about 26 %). Most of the private entities are single-owned companies not generating job places and the current unemployment rate is 14 %. It is higher than in the region (10.3 %) and in Poland (10.8 %). General demographic situation is characterised by aging and decreasing population (18.0 thousand for 2015).

A primary category that illustrates financial condition of the Municipality is budget balance containing operating and capital balance. Operating balance as the difference

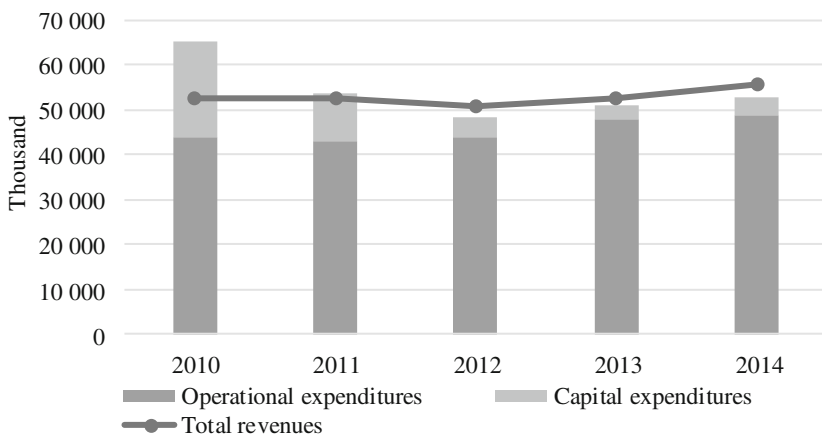


Fig. 1. General financial situation of the Municipality (2010–2014) [12].

between operating revenues and operating expenditure indicates whether the unit is able to cover running expenses with current income without abuse of municipal assets and additional debt [11]. Operating balance and capital revenues indicates the investment possibilities. In other words, surplus of total revenues over operating expenses can be spent on investment. The Fig. 1 illustrates the case for the Municipality.

There was a distressing deficit trend in 2010–2011. Yet, it has stopped and the budget balance has been positive since 2012. Current revenues generated about 87 % of total revenues on average in the studied period 2010–2014, while capital revenues equalled 13 % on average but were generally decreasing. This suggests that the Municipality concentrates on a current performance.

Table 1 shows revenues and expenditures per sections in 2014. The share of revenues from fees and taxes was the greatest, while from agriculture relatively small and tourism - none. The share of social expenditures is the greatest, while agriculture and tourism relatively small.

Table 1. Revenues and expenditures per sections in the Municipality (2014) [12].

Revenues	(%)	Expenditures	(%)
Fees and taxes	38.47 %	Schools and education	35.50 %
Social service	16.52 %	Social service	22.83 %
Housing	8.24 %	Housing	6.81 %
Transport and communication	0.38 %	Transport and communication	3.30 %
Tourism	0.00 %	Tourism	0.41 %
Agriculture	3.16 %	Agriculture	3.20 %
Communal economy	0.13 %	Communal economy	6.49 %
Others	33.00 %	Others	21.44 %
Total	100.00 %	Total	100.00 %

Taking under consideration agriculture and touristic character of the Municipality, and high dependence of Municipality revenues on fees and taxes, the observation relating structure is worrying. According to revenues per section in 2010–2014, revenues in agriculture, communal economy and environment protection stabilized after decrease in 2012, while revenues from fees and taxes have increased over 50 %. According to expenditures per section in 2010–2014, expenditures for agriculture were decreasing.

Finally, investment policy is equally determined by revenue policy of the Municipality presented above, but also by the debt policy. The Municipality is relatively small one in terms of inhabitants and budget, which determines its potential. Table 2 presents fundamental debt ratios which are very high however still below the law limit. The increase of ratio relating debt servicing in 2013 is explained by bonds issue.

The limits relating debt policy are formulated by The Act of Public Finance. The limit of 15 % refers to the relationship of planned repayment of debt during the financial year to budget revenues. While 60 % limit refers to the relationship of total debt to budget revenues. Yet, due to new regulation in public finance these limits have

Table 2. Selected debt ratios of the Municipality (2010–2014) [12].

Item	2010	2011	2012	2013	2014
Debt/own revenues (limit 60 %)	55.09 %	59.80 %	59.63 %	54.34 %	52.20 %
Debt servicing/own revenues	6.19 %	11.07 %	10.96 %	30.09 %	6.03 %
Interests paid/own revenues (limit 15 %)	2.41 %	3.55 %	3.63 %	2.87 %	2.02 %

been replaced by the individual local government individual debt ratio (Art. 242), starting from 2014. Individual debt ratio, calculated along the formula provided in the referred article of law, shows that the limit for debt service was not exceeded for the Municipality in 2014.

3.2 Description of the Property and Development Programs

The Municipality has been looking forward to investors interested in agriculture support and development, particularly food processing and feed factories. The Municipality owns adequate grounds to undertake such activities. A large agricultural area is available for the development. It is placed between arms of the river, which is currently leased by local farmers. The current bridge is in bad condition and roads are not driveable. The general investment idea assumes development of the 180 ha area with the replica of a Dutch town, with hotels, restaurants, bars, offices, shopping and tourist businesses, housing for service and workers. The creation of a replica town is justified by history as Dutch settlers were present in the sixteenth and seventeenth centuries in the area. In addition, museum and model farms relating milk production and its processing, fishing and flowery, are anticipated. The construction of parking lots and small freight trains is also forecasted. The Municipality has signed a number of partnership agreements and letters of intent, yet it is still looking for particular investors interested in the project. Because of poor condition or sometimes lack of technical infrastructure, and level of real estate prices, most investors would rather prefer investing in the outskirts of a larger city. On the other hand, the natural values supports clean and natural agriculture which has become very important recently in the context of sustainable development. Also, relatively high level of unemployment is an important resource for potential investors. Therefore, taking under consideration legal and economic conditions relating to the property as well as financial and demographic condition of the Municipality, the general objective of the project is to attract investors.

It the first stage of the project, development of 60 ha area is planned. The master plan allows following function: housing, retail and service, bio-agriculture and model farms. Due to natural values of the region, the master plan does not allow to implement environmentally harmful projects or investment which can change the landscape significantly. The development program for the area assumes three alternative functional programs:

1. The whole investment area is designated for housing. The Municipality will invest in the technical infrastructure in the area, divide the land into plots of approximately 1.000 m², and sell 40 plots per year.

2. The investment area is developed with commercial function of retail and service, and bio-agriculture with model farms. Some processing, feed production, plant biomass is possible in this option. The Municipality assumes sale of the entire within 4 years. The program assumes the site for the hotel with conference facilities, as there is no hotel and no conference space for about 300 people in the Municipality. Single places are offered by local farmers supplementing their basic agriculture activity with agrotourism.
3. The investment area is developed based on above presented two options. The half of the land is designated for the residential function and hotel, and the other half is entitled for retail and service, bio-agriculture and model farms.

3.3 Evaluation Assumptions and Social-Economic Analysis

The evaluation of the project has been performed from the Municipality point of view with respect to the appropriate guidelines [13]. It has been conducted based on the standard method which means that the debt financing the project will be secured and repaid from the project itself. The analysis covers the period associated with sale of the parcels which is 11 years and has been conducted in current prices. The real discounting rate is assumed at the market level of 10 % and has been re-calculated with CPI (consumer price index) to nominal rate of discounting. Macroeconomic assumptions regarding CPI and GNP (gross national product) is based on the forecast of the EBRD (European Bank for Reconstruction and Development). Income tax has been omitted, as municipalities do not pay income tax.

CAPEX (capital expenditures) relates to the construction period and contains land contribution, and realization of the technical infrastructure: roads, water and sewage system, and energy. Replacement investments and capital expenditures during the operation phase are not projected. CAPEX includes VAT (value added tax), as local governments do not have right to VAT deduction. For the comparability of data, PLN (pln) has been converted into EUR (€) at the average rate of €1 = pln4,1021 for the day of the analysis (NBP, 2015-18-07). Table 3 shows assumptions of development program in three described options with applicable CAPEX assessment.

In terms of the revenues, it has been assumed in all cases that the Municipality sells 25 % of all parcels before the start of the investment and hereby fund part of the capital expenditures. Parcels for pre-sale are without technical infrastructure and therefore have been priced with 20 % discount. After pre-sale in '0' year of analysis, in case of residential area, 40 the plots will be sold each year, and the remaining area will be sold within 4 years. OPEX (operational expenditures) includes costs associated with the project promotion and sale of parcels (division of property, valuation, and preparation for sale) and have been expected at 5 % of the revenue from sales as in comparable projects. Other costs do not occur. The Table 4 shows forecast of revenues, costs, and net operating profit for three variants of the project.

Based on the forecasts of EBITDA and own financing, cash flow and financial evaluation have been performed for three alternatives. Cash flows do not include changes in working capital. Internal rate of return (IRR), net present value (NPV), and profitability index (PI) of the project have been calculated. The calculation has been made at the discount rate of 10 %, recalculated to nominal value. According to CBA

Table 3. Project development program and basic financial assumptions. Author's study.

Alternative and value	I	II	III
Area of property under development [m ²]	600 000	600 000	600 000
Area of roads and communication [m ²]	64 000	24 000	44 000
Area for parcels [m ²]	536 000	576 000	556 000
Area for residential investment [m ²]	536 000	–	278 000
Area for retail and service, bio-agriculture production, model farms investment [m ²]	–	576 000	278 000
Plots for residential investment [no]	536	–	273
Current value of the land used for agriculture [€]	530 948	530 948	530 948
Price of agricultural land to value Municipality's contribution in-kind [€/m ²]	0.88	0.88	0.88
Price of land for retail and service, and agriculture production with model farms, no infrastructure [€/m ²] (for pre-sale)	4.88	4.88	4.88
Price of land for residential investment, no infrastructure [€/m ²] (for pre-sale)	8.19	8.19	8.19
Price of land for retail and service, and agriculture production with model farms [€/m ²]	6.09	6.09	6.09
Price of land for residential investment [€/m ²]	10.24	10.24	10.24
CAPEX - in-land contribution [€]	530 948	530 948	530 948
CAPEX - roads infrastructure [€]	2 100 225	561 218	1 181 098
CAPEX - water and sewage system, energy [€]	1 585 657	932 419	1 169 894
Total CAPEX [€]	4 216 830	2 024 585	2 881 940
Own financing	100 %	100 %	100 %

framework, selected benefits and costs have been analysed and quantified. The main focus is on the socio-economic impact of the investment project while environmental effects have been skipped. It has been justified by the scope of the research and also according to the master plan, that the investment cannot be harmful to environment.

Following external benefits for the project stakeholders have been identified: additional employment for local society, increase in share of income taxes and property tax for the Municipality, additional income regarding tourism for local entrepreneurship, increase of standard of living for the inhabitants, and finally, perpetuity of the benefits. Here's how the mentioned socio-economic benefits of the project have been calculated.

Additional employment refers to the surplus workers at the time of investment. It is assumed that parcels will be sold systematically. The additional income regarding employment has been assumed at 13 % of the estimated value (CAPEX) of the investments. For housing investment CAPEX is €150.000 per single house and €1.200/m² for remaining area.

Table 4. Revenues, operation costs and EBITDA for three variants of the project. Author's study

Alternative I	0	1	2	3	4	5	6	7	8	9	10
Price [€/m ²]	8.19	8.19	8.19	8.19	8.19	8.19	8.19	8.19	8.19	8.19	8.19
CPI	1.60%	1.60%	1.60%	1.60%	1.60%	1.60%	1.60%	1.60%	1.60%	1.60%	1.60%
Price with CPI [€/m ²]	8.32	8.46	8.59	8.73	8.87	9.01	9.15	9.30	9.45	9.60	9.75
Number of sold parcels [m ²]	134	40	40	40	40	40	40	40	40	40	40
Area sold [m ²]	134 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000
Total revenues	223 029	338 205	343 617	349 114	354 700	360 376	366 142	372 000	377 952	383 999	390 143
OPEX (5%)	11 151	16 910	17 181	17 456	17 735	18 019	18 307	18 600	18 898	19 200	19 507
EBITDA	211 878	321 295	326 436	331 659	336 965	342 357	347 834	353 400	359 054	364 799	370 636
Alternative II	0	1	2	3	4						
Price [€/m ²]	4.88	4.88	4.88	4.88	4.88						
CPI	1.60%	1.60%	1.60%	1.60%	1.60%						
Price with CPI [€/m ²]	4.95	5.03	5.11	5.20	5.28						
Area sold [m ²]	144 000	108 000	108 000	108 000	108 000						
Total revenues	561 664	526 560	526 560	526 560	526 560						
OPEX (5%)	28 083	26 328	26 328	26 328	26 328						
EBITDA	533 580	500 232	500 232	500 232	500 232						
Alternative III	0	1	2	3	4	5	6				
Price [€/m ²]	8.19	8.19	8.19	8.19	8.19	8.19	8.19				
CPI	1.60%	1.60%	1.60%	1.60%	1.60%	1.60%	1.60%				
Price with CPI [€/m ²]	8.32	8.46	8.59	8.73	8.87	9.01	9.15				
Number of sold parcels [m ²]	68.00	40	40	40	40	40	5				
Area sold [m ²]	68 000	40 000	40 000	40 000	40 000	40 000	5 000				
Revenues	452 716	338 205	343 617	349 114	354 700	360 376	45 768				
Price [€/m ²]	4.88	4.88	4.88	4.88	4.88						
CPI	1.60%	1.60%	1.60%	1.60%	1.60%						
Price with CPI [€/m ²]	4.95	5.03	5.11	5.20	5.28						
Area sold [m ²]	69 500	52 125	52 125	52 125	52 125						
Revenues	271 081	254 138	254 138	254 138	254 138						
Total revenues	723 796	592 343	597 755	603 253	608 838	360 376	45 768				
OPEX (5%)	36 190	29 617	29 888	30 163	30 442	18 019	2 288				
EBITDA	687 607	562 726	567 867	573 090	578 397	342 357	43 479				

Increase in share of income taxes and property tax for the Municipality relates additional employment and related income. It has been assumed that 70 % of the developers' income relates individuals and 30 % relates companies. Municipalities has share in income taxes which equals 39.34 % for PIT (personal income tax) and 7.61 % for CIT (corporate income tax). Increase of Municipalities' revenues relates also to the

Table 5. Economic analysis of third alternative of the project. Author's study

No.	Benefit		0	1	2	3	4
1.	Additional employment						
A.	Number of sold parcels for housing investment		68	40	40	40	40
	CAPEX of 1 investment	150 000	152 400	154 838	157 316	159 833	162 390
	Value of all investments		10 363 200	6 193 536	6 292 633	6 393 315	6 495 608
	Developers' remuneration	13.00%	1 347 216	805 160	818 042	831 131	844 429
B.	Area sold		69 500	52 125	52 125	52 125	52 125
	CAPEX per m2	1 200	1 219	1 239	1 259	1 279	1 299
	Value of all investments		84 734 400	64 567 613	65 600 695	66 650 306	67 716 711
	Developers' remuneration	13.00%	11 015 472	8 393 790	8 528 090	8 664 540	8 803 172.38
C.	Total remuneration		12 362 688	9 198 949	9 346 133	9 495 671	9 647 601
2.	Share in income taxes						
A.	Personal income increase	70.00%	8 653 881.60	6 439 264.54	6 542 292.77	6 646 969.46	6 753 320.97
	PIT (personal income tax)	20.00%	1 730 776	1 287 853	1 308 459	1 329 394	1 350 664
	Municipality share in PIT	39.34%	680 887	506 641	514 748	522 984	531 351
B.	Corporate income increase	30.00%	3 708 806	2 759 685	2 803 840	2 848 701	2 894 280
	CIT (corporate income tax)	19.00%	704 673	524 340	532 730	541 253	549 913
	Municipal shares in CIT	6.71%	47 284	35 183	35 746	36 318	36 899
C.	Municipality CAPEX		2 350 992				
	Correction of VAT	23.00%	439 616				
D.	Total		1 167 787	541 825	550 494	559 302	568 250
3.	Increase of property value (property tax)						
A.	Houses (m2) cumulative	200	13 600	21 600	29 600	37 600	45 600
100%		0.17	2 354	3 739	5 123	6 508	7 893
B.	Remaining area cumulative		69 500	121 625	173 750	225 875	278 000
20%	Buildings	5.64	78 376	137 158	195 940	254 723	313 505
100%	Land	0.22	15 248	26 685	38 121	49 557	60 993
	Total		95 978	167 581	239 184	310 787	382 390
4.	Tourism						
	Number of events	12	12	12	12	12	12
	Number of participants	60	60	60	60	60	60
	Value of expenses per participant	100	102	103	105	107	108
	Total		73 152	74 322	75 512	76 720	77 947
5.	Standard of living						
	Number of inhabitants cumulative	4	272	432	592	752	912
	Ratio of benefits	10%	27.20	43.20	59.20	75.20	91.20
	Days of work absence	3	3	3	3	3	3
	Expenses for medicines	10	10	10	10	11	11
	Number of working days a year	252	252	252	252	252	252
	GDP per day		34	35	36	37	39
	Total		111	115	119	123	127
6.	Perpetuity						
	Total value of benefits		13 699 717	9 982 793	10 211 441	10 442 602	10 676 317
	Residual value		-	-	-	-	-
	Total		13 699 717	9 982 793	10 211 441	10 442 602	10 676 317
7.	Present value of benefits						
	Total benefits		13 699 717	9 982 793	10 211 441	10 442 602	10 676 317
	Real economic discount rate		1,0000	0,9374	0,8787	0,8237	0,7721
	Present value of benefits		13 699 717	9 357 699	8 972 656	8 601 213	8 243 078
	Present value of benefits cumulative		13 699 717	23 057 415	32 030 071	40 631 285	48 874 363
8.	Present value of benefits		55 027 286				

No.	Benefit	5	6	7	8	9	10
1.	Additional employment						
A.	Number of sold parcels for housing investment	40	5	-	-	-	-
	CAPEX of 1 investment	164 988	167 628				
	Value of all investments	6 599 537	838 141	-	-	-	-
	Developers' remuneration	857 940	108 958	-	-	-	-
B.	Area sold	-	-	-	-	-	-
	CAPEX per m2						
	Value of all investments	-	-	-	-	-	-
	Developers' remuneration	-	-	-	-	-	-
C.	Total remuneration	857 940	108 958	-	-	-	-
2.	Share in income taxes						
A.	Personal income increase	600 557.91	76 270.85	-	-	-	-
	PIT (personal income tax)	120 112	15 254	-	-	-	-
	Municipality share in PIT	47 252	6 001	-	-	-	-
B.	Corporate income increase	257 382	32 688	-	-	-	-
	CIT (corporate income tax)	48 903	6 211	-	-	-	-
	Municipal shares in CIT	3 281	417	-	-	-	-
C.	Municipality CAPEX						
	Correction of VAT						
D.	Total	50 533	6 418	-	-	-	-
3.	Increase of property value (property tax)						
A.	Houses (m2) cumulative	53 600	54 600	54 600	54 600	54 600	54 600
100%		9 277	9 450	9 450	9 450	9 450	9 450
B.	Remaining area cumulative	278 000	278 000	278 000	278 000	278 000	278 000
20%	Buildings	313 505	313 505	313 505	313 505	313 505	313 505
100%	Land	60 993	60 993	60 993	60 993	60 993	60 993
	Total	383 775	383 948	383 948	383 948	383 948	383 948
4.	Tourism						
	Number of events	12	12	12	12	12	12
	Number of participants	60	60	60	60	60	60
	Value of expenses per participant	110	112	114	115	117	119
	Total	79 194	80 462	81 749	83 057	84 386	85 736
5.	Standard of living						
	Number of inhabitants cumulative	1 072	1 092	1 092	1 092	1 092	1 092
	Ratio of benefits	107.20	109.20	109.20	109.20	109.20	109.20
	Days of work absence	3	3	3	3	3	3
	Expenses for medicines	11	11	11	12	12	12
	Number of working days a year	252	252	252	252	252	252
	GDP per day	40	42	43	45	46	48
	Total	131	137	141	146	151	156
6.	Perpetuity						
	Total value of benefits	1 371 574	579 922	465 838	467 151	468 485	469 840
	Residual value	-	-	-	-	-	7 033 532
	Total	1 371 574	579 922	465 838	467 151	468 485	7 503 372
7.	Present value of benefits						
	Total benefits	1 371 574	579 922	465 838	467 151	468 485	7 503 372
	Real economic discount rate	0.7237	0.6784	0.6359	0.5961	0.5588	0.5238
	Present value of benefits	992 668	393 434	296 247	278 479	261 787	3 930 307
	Present value of benefits cumulative	49 867 031	50 260 465	50 556 712	50 835 192	51 096 979	55 027 286

increase in the value of property and property tax. The property tax for houses is €0.17/m² and it has been assumed that average house is 200 m². The property tax for commercially used building is €5.64/m² and €0.22/m² for land. It has been assumed that buildings' average share in the sold area is 20 % while land is 100 %.

Estimates regarding tourism are careful. It has been assumed, that 12 events for 60 people each, will take place every year. The average expenditure on accommodation and food has been presumed at €50 per person. This is an additional income for local entrepreneurship. Tax benefits have been skipped in this case.

Table 6. Present value of selected benefits for the alternative variants. Author's study.

Alternative	I		II		III	
	(€)	(%)	(€)	(%)	(€)	(%)
(1) Additional employment						
Residential investment	8 774 128	48.95 %	n/a	0.00 %	4 852 160	8.82 %
Remaining investment	n/a	n/a	83 521 473	82.71 %	40 310 711	73.26 %
(2) Share in income taxes						
Personal income increase	483 244	2.70 %	4 600 029	4.56 %	2 487 390	4.52 %
Corporate income increase	33 558	0.19 %	319 445	0.32 %	172 734	0.31 %
Correction of VAT	689 230	3.84 %	279 298	0.28 %	439 616	0.80 %
(3) Increase of property value (property tax)						
Residential investment	86 766	0.48 %	n/a	n/a	56 814	0.10 %
Buildings	n/a	n/a	4 136 059	4.10 %	1 996 223	3.63 %
Land	n/a	n/a	804 681	0.80 %	388 370	0.71 %
(4) Tourism	n/a	n/a	564 860	0.56 %	638 012	1.16 %
(5) Standard of living	1 052	0.01 %	n/a	n/a	1 052	0.00 %
(6) Residual value	7 858 296	43.84 %	6 756 730	6.69 %	3 684 202	6.70 %
Present value of benefits	17 926 275	100.00 %	100 982 574	100.00 %	55 027 286	100.00 %

n/a – not applicable

A higher standard of living is achieved due to change of residence from the city to the suburbs. This benefit is unquestionable, yet problematic for its quantification. It has been assumed, that 4 people move with one sold residential plot. Benefits have been carefully assumed only for 10 % of the population. The benefit has been calculated as costs' savings related to work absence of three days which relates to appropriate loss of GBP and costs of medicine of €10 per person.

Economic analysis covers the period of the investment, yet to cover the period afterwards, the residual value of the benefit has been calculated based on the Gordon's model.

Table 5 shows detailed economic analysis for the third alternative as it is a mix of first and second alternative.

The value of above described benefits has been identified and evaluated for each of the three alternatives. The Table 6 shows the results of the analysis.

First alternative's benefits are generated generally by additional employment due to realization of residential investments and due to residual value. It is the weakest alternative. Second alternative offers the highest value of present benefits. The benefit relating additional employment relating implementation of investment in retail and service, agriculture production, and model farm generates about 82 % of the present value of benefits. The last alternative offers major benefits of additional employment of 73 % of total present value of the benefits. Increase of Municipal revenues due to taxes, tourism, and standard of living seems of less importance in all cases. Taking however under consideration Municipal demographic and economic situation, unemployment and migrations are the major Municipality worry. Therefore, based on analysis of

present value of benefits, the Municipality should consider not only second, but also third alternative which is shearing benefits from development of residential and commercial area.

4 Discussion and Conclusions

In term of effectiveness analysis, a rational investor will seek to maximize the ENPV, ERR and B/C indicators. Only projects with positive ENPV should be accepted. The ERR should be compared to the required rate of return and investment should be only accepted when IRR is higher than required rate of return. B/C should be accepted only when is higher than 1. The results of calculation of financial metrics: NPV (net present value), IRR (internal rate of return), and PI (profitability index); and economic metrics: ENPV (economic net present value), ERR (economic rate of return), and B/C (benefits to costs) are presented in Table 7.

Table 7. Present value of selected benefits for the alternative variants. Author's study.

Alternative	I	II	III
Total CAPEX	4 216 830	2 024 585	2 881 940
Pre-financing	211 878	533 580	687 607
Investor's capital engagement	4 004 952	1 491 005	2 194 333
NPV	-2 061 823	36 085	-236 206
IRR	-2.54 %	12.90 %	7.17 %
PI	0.49	1.02	0.89
Present value of benefits	17 926 275	100 982 574	55 027 286
ENPV	16 363 208	101 198 272	53 464 219
ERR	237.84 %	Not available	Not available
B/C	33.74	Not available	Not available
Present value of benefits : total CAPEX	425.11 %	885.43 %	622.02 %
ENPV : Total CAPEX	388.05 %	808.23 %	567.78 %

In the case of second and third alternative, it was not possible to calculate ERR or B/C as all present value of economic cash flows were positive and there was no negative cash flow to refer to (value of external benefits exceeded value of CAPEX).

Considering the above, the Municipality should implement second alternative of the investments, for which the metrics for financial efficiency (NPV, IRR, PI) and economic effectiveness (ENPV, ERR, B/C) are the highest. Moreover, also taking under consideration the Municipal Strategy (focused on creating job opportunities, economy diversification and tourism development), and also literature review relating effects of urbanisation, second alternative is the most justified.

The assumptions for three options of development programs meet requirements of master planning but vary in terms of project effectiveness. Studying different alternatives can help towards better management and understanding results of different development programs. The research might be also useful for public managers

searching for partners and also private investors looking for opportunities. Since the proposed framework supports investment evaluation from the perspective of society, it supports local municipal decision makers. The model may be also an example of how to evaluate economic and social results of local planning and may be used as a tool for effectiveness maximization.

Local planning is connected with speculation in real estate markets, additionally strengthened by urban sprawl. Wrong or bad planning system, and inadequate public institution intervention may result in more speculative activities in the real estate market. Local planning should then respect general and specific circumstances in which space and land management takes place. These circumstances are: the specific geographic location of the area, political system, socio-economic system, development of a city, shape of the metropolitan area. Any decision contained in the plan means actual and possible changes in the cost/benefit allocation seen from the both economic and social perspective.

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