

Land Use Efficiency on Example of the Transformation of Rural Properties

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Abstract. Appropriate use of the economic potential of the property is a challenge not only for planners and local authorities, it is also important for the individual owners. The biggest changes will result from changes in local planning, mainly from the conversion of agricultural land for residential purposes. However, legislative changes were created to protect this type of land against uncontrolled rotation. The changes made in recent years, complicated, or even impossible so far used the process of buying and subsequent conversion of the property, to the needs of the real estate market premises or services.

The article presents the ideas of Land Use Efficiency on the example of transformation of agricultural real estate in the property held for development. Example simulations are an empirical transformation or division of property to sell them for housing purposes. These examples illustrated in the example of land developing, for whom the lack of local development plans or plans are developed recently. For this purpose, a qualitative and quantitative approaches, including decision trees to determine the criteria for the formation of real estate prices. The author draws attention to the possibility of the development of non-urbanized areas and the potential costs and financial returns resulting therefrom.

Keywords: land use efficiency, land use, local planning, regression trees.

Conference topic: Technologies of Geodesy and Cadastre.

Introduction

Spatial Municipality is a key aspect of the management of its assets, it can bring many benefits, firstly material, but also (or primarily) to improve the quality of life of residents. Properly conducted spatial economy must consider all aspects of the change in land use from zoning, through planned underground utilities on the device routes ending. Considering all these aspects is difficult and expensive. Here comes to the aid application of Land Use Efficiency of the widely written in (Auzinsa *et al.* 2013; Du *et al.* 2016). This article presents an attempt to transform the nearly 4-hectare area allocated to commercial purposes, to utilize it for single-family housing development. Such buildings will not significantly contribute to the degradation of space and ensure the development and comfortable housing within the city administrative Kety.

Agricultural real estate

New rules on the marketing of agricultural property are laid down in the Act of 14 April 2016. To suspend the sale of real estate of the Agricultural Property of the Treasury and on amending some laws (Act of 14 April... 2016). The Act does not apply to cases in which the local zoning plan or a final decision on building and land development property is used for purposes other than agricultural. This provision does not apply to real estate located within special economic zones, as well as houses, dwellings, outbuildings and garages with the necessary land and kitchen gardens, as well as agricultural property with an area of 2 ha. This provision does not make so immediate ban on the sale of real estate belonging to the Treasury. Agricultural Property Agency may dispose of property held for purposes other than agricultural and agricultural land with an area of less than 2 hectares. It is also possible sale of other agricultural property with the consent of the minister responsible for rural development. Despite the limitation of trade in agricultural property it is not so it is completely impossible. A common case is the reassignment of land for non-agricultural and off the land used for agricultural production. Change of use of agricultural land for non-agricultural purposes is composed of two parts: the reassignment included in the local plan and the exclusion of agricultural production land with high agricultural suitability (Mika, Len 2016).

The process of transformation of the property varies depending on the location of the plot and the quality of the soil (Mika 2016; Jasińska, Preweda 2012). In the case where the agricultural lands are in areas of the city, non-agricultural buildings are possible without changing the destination and without excluding land from agricultural production. The basis for the change can be a local plan or zoning decision in the absence of a plan.

For agricultural land located outside the administrative boundaries of cities and where the change of use concerns an area larger than 0.5 hectares should consider the change in the local plan and obtain the consent of the Speaker of

the province and the minister responsible for agriculture. This applies to agricultural land classes I–III. The transformation of the remaining land can occur because of the decision on building conditions (Act of 14 April... 2016). It is worth noting that the approval does not require the allocation for non-agricultural land being arable land classes I–III, where the land meets the following conditions:

- 1) at least half the surface of each land has a continuous part in the built-up area,
- 2) are located at not more than 50 m from the nearest boundary of the plot (built)
- 3) are located at not more than 50 meters from a public road,
- 4) the surface does not exceed 0.5 hectares, regardless of whether they constitute one whole or represent several distinct parts.

The second part of the change of use of the property is its exclusion from agricultural production by receiving a decision by the district governor. This is necessary prior to obtaining a building permit. Decision require arable land classes I–III and IV–VI from organic soils. Down process of production is not necessary while for the soil classes IV–VI of mineral origin. A person applying for a permit to exclude land from agricultural production is required to make the appropriate fees (Jasińska 2016). With fees are excluded land with an area of 0.05 hectares for the construction of a detached house and 0.02 ha for each apartment in apartment building.

For analytical purposes, information was collected on the sale of 40 agricultural property from the period 2014–2015. All prices are updated on 1 December 2015. For such a database created regression tree diagram (Jasińska 2012), which incorporates as a feature of quality – precinct where it was sold real estate (preserved Polish names – see Fig. 1).

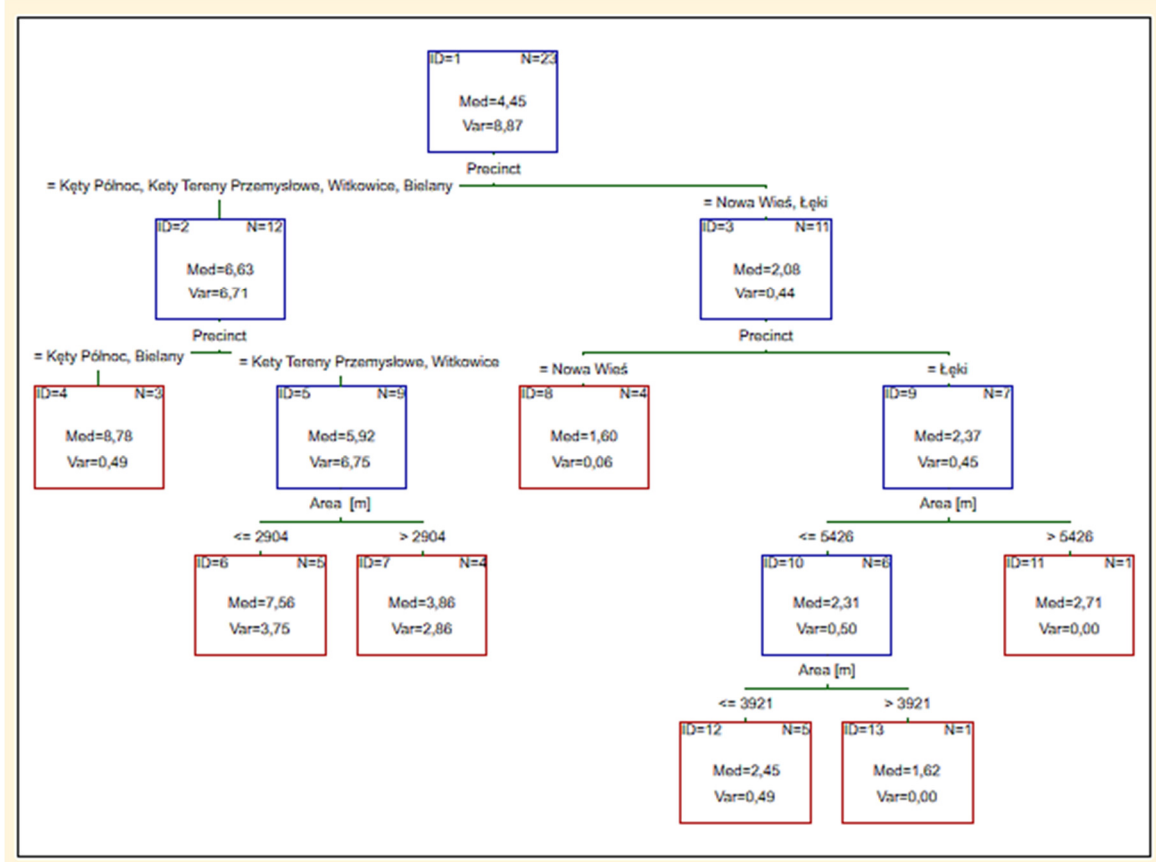


Fig. 1. Regression tree for the base of land used for agricultural purposes
Source: own study base on (Jasińska 2012)

It is here that the division is not only due to the surface (frequent criterion for the formation (Jasińska 2014) of prices of agricultural property), but also the criterion of Excellence location of the property. Based on this scheme was rejected precincts in which the sale of the property is small (one–two transactions (Preweda 2013)). The project must be in one of the precincts left branch of the tree, preferably in areas precincts Kęty Tereny Przemysłowe, Witkowice. Real estate prices in the area are varied, but not reaching the extreme transactions occurring there are not single.

The choice of location of new settlements

In conducting an analysis of possible locations for the new settlement area which sought to change the destination of the local plan would meet the main objectives for the plot (Act of 27 March... 2003) is to say:

- Location near existing residential buildings (important for changes in study and plan);
- The existing public access road to the property;
- The proximity of technical infrastructure facilities (expandable).

After analysing potential locations throughout the community Kety, as the area is best suited for the planned investment was selected an area of approximately 4.05 hectares located in the northern part of the city. It is a complex today constitutes the plot: 8228, 8223, 8213, 8212, 8202, 8201, 8193/1, 8193/2. This area is located about 1 km from the city centre. The big advantage of this location is that it is located approximately 500 m from the eastern ring road. This will facilitate access to the property without having to cross the city centre. Currently selected areas are used as farmland, partly overgrown with bushes and low trees.

In the current local plan selected plot located in an area (reserved for agricultural purposes – see Fig. 2) of agricultural land (R) and partially in the lane designated for internal roads (KDW). From the west, this area borders on areas earmarked in the local plan for housing and service (MU), and a narrow strip of greenery undeveloped (Z). On the east side of the road (KDW), and in turn from the south extend areas of single-family housing (MN). On the north side, there is agricultural land with an area of about 5.7 ha, which in the future may be a place of expansion planned settlements. The advantage of the chosen location is also the location of the area within the city limits Kety. Thanks to allocate the property for non-agricultural and non-forest will not be necessary to obtain the consent of the minister responsible for rural development, even though this area is partially located on land classes RIIIa and RIIIb.

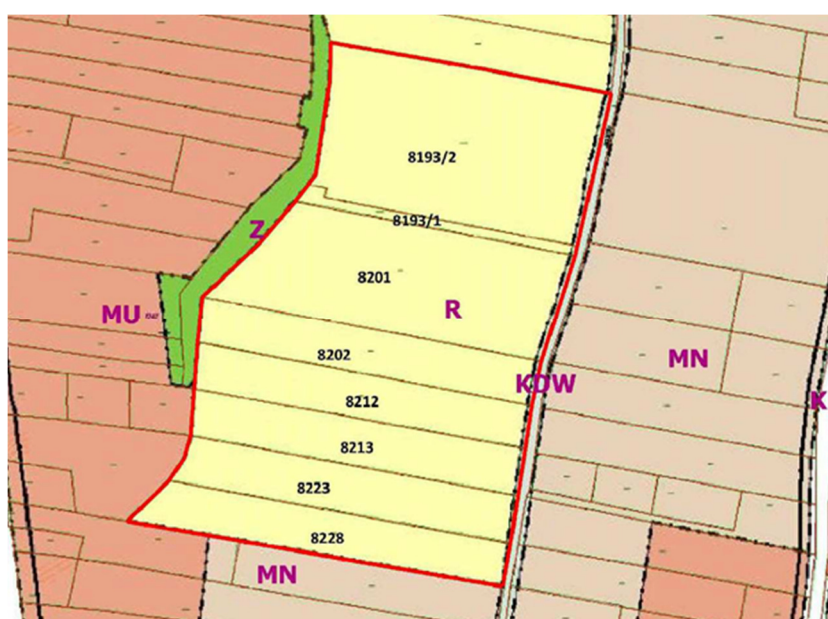


Fig. 2. Purpose of plots selected for the project settlement in the current local plan
Source: current local plan of Kety

The planned change SUIKZP and the MPZP will be encompassed an area of eight plots, which built a new settlement, except for a narrow strip of land allocated in the local plan for public roads (KDL), the existing local roads (KDW). Previously existing allocation of plots R – agricultural land with an area of 3.9873 ha is changed to MN – areas of single-family housing. This concept is consistent with the existing specifications neighboring areas and will be a widening area of single-family housing located on the south side of the project area. In addition, the agricultural area on the north side of the settlements will provide facilities for the expansion of settlements in the longer-term time. Border destination KDW – areas of internal roads, they will be converted to municipal public roads, the local KDL.

The planned investment involves the construction of single family houses standing, because the surface of secreted parcels will oscillate in the range of 0.05 to 0.10 ha. It was assumed that the size of the plots will maintain a loose form of building, which dominates the surrounding of the selected area. The project also included the separation of public roads and internal. The local plan envisages that the width of the roadway for internal roads not designated in the Unitary Development Plan should be at least 6 m. However, due to the comfort of future residents and the fact that for the existing access road to the settlement adopted the width of 8 m also the size adopted for new secreted internal roads in the project area. Plot No. 8193/1 (Fig. 2) is currently utilized as a dirt road, because in the proposed settlement was also used as a communication route.

Because of the division of the original 7 plots creation of 69 new plots (plot number 8193/1 remained unchanged, as is the access road). 53 of them will form the plots under the Law on Spatial Planning and Development (Act of 27 March... 2003). Their area ranges from 0.0529 to 0.1041 ha (Hanus *et al.* 2014). It is expected that real estate building

will be sold together with shares in the respective plots road. The total area of building plots is 3.4421 hectares, while the area of the plots allocated for roads 0.6101 ha (see Fig. 3).

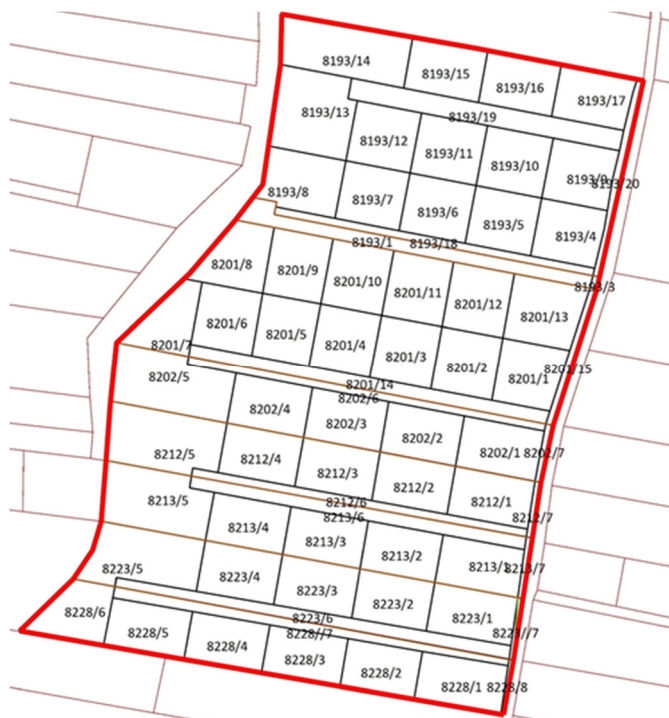


Fig. 3. The project division of plots for new housing
Source: own study

Profits and costs generated by the project

Presented simulation creation of a new housing estate will be carried with it as well as profits and financial expenses for the municipality and the investor (property owners). On the cost side, the municipality can mention the need to finance work related to the preparation of changes in theories of urban planning and local plan, construction (unit) of new roads and the construction of technical infrastructure (Buško, Przewiężlikowska 2016; Buško, Meusz 2014). Profits for the municipality will be generated by the planning and adjacency fee and proceeds from property taxes.

Funding will require the allocation of plots. It remains the responsibility of the investor (property owners), with so many divisions should take a lump sum fixed in the amount of about 35 000 PLN (8 thousand Euros).

Below is a diagram of a regression tree created based on 19 here land sold in 2014–2015 and for housing low (see Fig. 4).

The analysed area is characterized by the following features:

- Surroundings: single-family housing intensive or loose,
- Location – close to the centre,
- Area – from 0.0529 to 0.1041 ha,
- Utilities – water supply and electricity (based on the analysis presented these attributes did not play a significant role in the formation of real estate prices)
- Access to a public transport – good (also a feature omitted due to the low predictive power for the unit price of the property).

Based on the adopted model you can estimate the price of real estate sold at PLN 58.28 / m² ± 1.17 PLN / m² (node 6, Fig. 4).

The total area of building plots is 3.4421 ha. Take the amount given above, it gives the amount of 2 006 055.88 PLN (58 736.77 EUR) obtainable from the sale of real estate. Before investing unit price in these areas amounted to 5.92 PLN / m² (which gives 203 722.32 PLN).

If you sell all parcels included in the new development within 5 years from the entry into force of the new plan, the local municipality would gain 540 700 PLN. But you cannot predict in detail how many of the newly created plots be sold during that time. Based on data on the number of transactions of real estate for the farm buildings and detached houses and detached houses in the municipal area Kety can say that in 2014 were sold 20 properties. If the situation on the real estate market will remain stable can be estimated that in the period of 5 years from the date of entry into force of the local plan in the municipality of Kety contained is about 100 transactions of sale of such property. So, there is a

probability that this time really will be sold all plots. Their biggest advantages of the real estate market are: favourable location and the availability of technical infrastructure, where construction will be required commune. In the case of the sale of only 80% of the investment value will amount to 432 560 PLN.

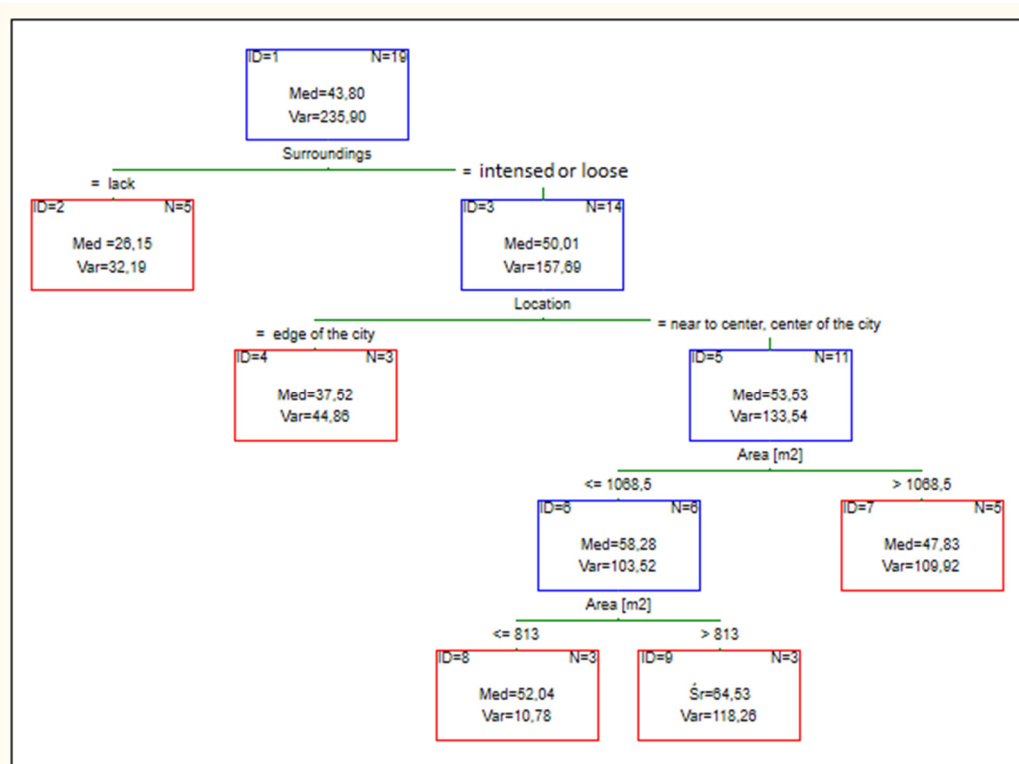


Fig. 4. Regression tree diagram showing the prices of land earmarked for housing construction low
Source: own study

Additional benefits for the community will be generated by revenues from property taxes. In the commune of Kety is not currently binding resolution establishing the fee adiacenckiej of the increased value of the property after the split or after the construction and technical infrastructure, so that duty must not be charged and will not constitute additional revenue for the municipality.

The first analysed spending that must be incurred during the design of the new settlements are costs associated with drafting changes to the existing study of the conditions and the local plan. Per the art. 7 of the Law on Local Government (Act of 8 March... 1990) to the commune's own tasks to be water supply and sewerage utilities. Therefore, the project's financial plan should consider the expansion of water and sewage networks in the analysed area. Scheduled in the project roads will be internal roads, which is why the cost of their cure will belong to the future co-owners of the property. Considering the existing equipment and the possibility of its use was estimated that the project will require the construction of water supply network with a length of 895 m and sewerage system with a length of 700 m.

The costs of the construction of the water supply and sewerage system was estimated based on tenders for similar projects carried out over the last 2 years and they amount to:

- water supply: about 144 thousand PLN (for 895 meters),
- sewerage network: about 402 thousand PLN (for 700m),
- Total 546 thousand PLN.

Half of this amount could be offset by a grant from the European Union under the Programme Infrastructure and Environment 2014–2020 which would increase the income of the municipality and lower adjacency levy (Jasińska 2016). As the basic costs from the municipality, to implement a new development based on: an amendment to the existing local plan and the construction of technical infrastructure (water supply and sewerage). For profit assumed proceeds from planning fee, if within 5 years from the date of entry into force of changes in the local plan will be sold 80% of the newly established plots. The statement omitted revenues from property taxes, because it is a small percentage of overall profits. In addition, it will appear only at the time of going further buildings to use, which can occur several years after the entry into force of an amendment to the local plan. The estimated (based on a public bid data) cost of the changes in the local plan and changes in theories of urban planning for the proposed settlement is 7 500,00 PLN. Proceeds from planning fee account for 78% of the total cost of the project (not including grants from the EU). The municipality could also get additional resources by introducing a resolution on the fee adiacenckiej. It is calculated

because of growth in the value of the property after their division (up to 30% increase in the value of real estate), as well as the construction of a new technical infrastructure (up to 50% increase in the value of real estate (Act of 8 March... 1990)). The above investment would affect the economic development of the community by providing new land for housing.

Conclusions

The following article allows to carry out Land Use Efficiency the example of financial analysis provided for the creation of a complex for building single-family, clearly pointing to the benefits of this project. The municipality itself, which invest in the infrastructure area technical file, can easily benefit from this process at the same time using EU subsidies, as well as benefiting from local taxes. Switched investment (preparation of land for detached houses) can increase the potential of the analysed area, giving nearly 10 times earnings before tax. It is particularly important here adequate study the real estate market, considering the qualitative characteristics (in this case, is the location and surroundings). Here you can see the practicality of the use of regression trees, which not only allow you to specify the unit prices after the completion of the investment, but also allow for analysis of alternative options. It is worth noting that the process of such an analysis has enabled the creation of clear criteria for the division lead directly to determine the unit price as well as the application of uncertainty resulting numerical value, which make the analytical process.

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