

TOWARDS A LOW-CARBON FUTURE? CONSTRUCTION OF DWELLINGS AND ITS IMMEDIATE INFRASTRUCTURE IN CITY OF SPLIT

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ABSTRACT

Globally the present is marked by a continuous increase of population in cities, an increase in usage of energy and an increase of pollution related to energy production and energy consumption. Technological innovations, new economic trends and political commitments are all coming together towards a low –carbon future. Locally, in Croatia and in particular in Split, conditions for a well-managed sustainable energy strategy that promotes compact cities oriented towards public transport are not provided for. Institute of Spatial Planning of the city of Split stopped working at the end of 1990's. Since then theories and techniques to predict and plan the city of Split future have not been reasserted.

We argue that urban planning is the foundation of making rational decisions in designing neighborhoods and cities when housing is the main, but not the only factor, which means that:

- planning and programming of neighbourhoods, including their economic analyses, should be treated as an integral part of an existing city, and not as isolated entities
- along with the dwellings construction neighbourhood supporting facilities should be built (school, kindergarten, playgrounds, etc), rayon supporting facilities (library, doctor's office, post office, bank, group of shops, sports grounds etc) as well as city supporting facilities (high school, university, city administration, museum, etc.) (Kukoč, 2014).

In that regard we will analyse two neighbourhoods in Split: first, the neighbourhood of Trstenik that was planned in 1968, and constructed from 1974 to 1976, and second, the neighbourhood of Kila that was planned in 2014, and is still under construction. All the necessary equipment for daily life and occasional activities, in terms of education, health, shopping and leisure in a general frame of limited commuting will be considered and explored by using city of Split's GIS portal

Keywords: compact city, public transport, limited commuting, GIS (geographic information system), neighbourhood

INTRODUCTION

Increasing number of population in cities and climate change are two of the great challenges of the 21st century. "In Europe, about 75% of Europeans live in urban areas (EEA n.d.). Cities are perceived as the engine of the member states' economies (generating 85% of Europe's GDP). At the same time, cities contribute to 80% of energy consumption and 75% of CO₂ emissions," (EUROCITY, 2013).

With changes of both the social order and the laws, which occurred in Croatia in 1991, social ownership was changed into a state ownership. Urban institutes of cities were abolished¹, and new were not formed. Urban planning together with programming was transferred from public to private sector. Only administrative city planning departments remained in the cities that are not dealing with visions or scenarios of the city future.

In regard to these facts we analyse whether city of Split's policy is oriented toward the low-carbon future. For the purpose the two neighbourhoods in Split are taken as case studies. First, we analyse the neighbourhood of Trstenik that was planned in 1968, and most of it constructed from 1974 to 1976, at the time of socialism, one-party system and self-government. Second, we analyse the neighbourhood of Kila that was planned in 2014, and to date is under construction, planned in capitalism, multiparty and market oriented system.

All the necessary equipment for daily life and occasional activities, in terms of education, health, shopping and leisure in a general frame of limited commuting are considered and explored as criteria for our comparison. In particular we take into account neighbourhood supporting facilities, rayon supporting facilities and city supporting facilities. Neighbourhood supporting facilities that are called primary city functions as well, neighbourhood inhabitants use every day. They are: kindergarten, primary school, daily supply shop, playground, local park, public house. Rayon supporting facilities or secondary city functions rayon inhabitants use occasionally. They are: library, doctor's office, post office, bank, group of shops, sports grounds etc. City supporting facilities or central city functions all city inhabitants use every day or occasionally. They are: secondary school, university, city administration, health administration, court, theatre, museum, gallery, institute etc.

In this paper we analyse distances from housing facilities to supporting facilities of the neighbourhood, of the rayon and of the city by using city of Split's GIS portal. The results we compare with existing situation, possibilities and impossibilities of safe walking routes, good public transport and commuting that occurs as a substitute for it.

THESES

We argue that urban planning is the foundation of making rational decisions in designing neighborhoods and cities where housing is the main, but not the only factor, which means that:

- planning and programming of neighbourhoods, including their economic analyses, should be treated as an integral part of an existing city, and not as isolated entities
- along with the dwellings construction of neighbourhood supporting facilities should be built (schools, kindergartens, clinics, playgrounds, etc), as well as city supporting facilities (high schools, museums etc.) (Kukoč, 2014).

¹ Exception is city of Zagreb urban institute

TRANSITION IN URBAN PLANNING

After the independence of Republic of Croatia in 1991, and the changing of the social system, one- party self-governing socialism was abandoned and multiparty market oriented capitalism introduced. Planning of big parts of town and extensive construction enterprises stopped due to new relations to construction land in cities defined by two laws: the Law on Amendments to the Law on Construction Land, which came into force in December 1990 (Official Gazette no. 53/90) and the Law on Compensation for Property Taken during the Yugoslav Communist Regime (Official Gazette no. 92/96), which came to force in January 1997. With the first law previously society owned construction land in cities became state owned and with the second law construction land in cities preserved for future construction, mostly for public programs, that was not put to use, was returned to previous owners, on their request. As the result of the above, urban plans are reduced to "cadastral urbanism" for individual, small-area operations. The city is not viewed anymore as a whole. That position leads to unsustainable development, dispersed city and the high carbon future. Ten years ago Ministry of Construction and Physical Planning of Republic of Croatia launched a program of subsidized housing construction with the aim to enable citizens with low income to buy their first apartment under much more favourable conditions than ones on the market. The Law on Subsidized Housing Construction (Official Gazette no 109/01., 82/04., 76/07., 38/09., 86/12., 07/13., 26/15.) regulates only the size of the apartments and does not say anything about facilities for inhabitants daily life. Since it is not regulated by the law city authorities, looking for the cheapest way to construct subsidized housing, provided land that does not necessarily include the neighbourhood supporting facilities. Also the cheapest land is usually on the edge of a city and with poor infrastructure, communal or any other.

EXPERT APPROACH

Yet expert recommendations and good practices suggest differently: "Cities can and must reassert control over their destinies with reinvigorated urban planning and design for the sake of shared prosperity and harmonious development (...) UN-Habitat promotes a reinvigorated notion of urban planning that involves sustainable use and equitable access to the "common" through appropriate policies and schemes", (UN-Habitat, 2014). "There is no better example of the efficiency and sustainability gains that come from balanced growth than Stockholm, Sweden. The last half- century of strategic regional planning has given rise to a regional settlement and communication pattern that has substantially lowered car-dependency in the middle-income suburbs", (Cervero, 2006).

NEIGHBOURHOOD OF TRSTENIK

In 1960's city of Split was growing by 3 % per year. The then city authorities and organisations set a plan that each family is to be in their own apartment by 1973. For that purpose they decided to build a new part of city of Split called Split III. That was to be the third city rayon, out of five planned in Split, for 50,000 people, with all the supporting facilities. "Split I is the old city and Split II a new town designed and built in the image of the Ville Radieuse. Split III involves a design of streets and pedestrian paths, lined with shops,

densely populated and more or less devoid of cars. Its spaces are scaled to people and their preferred patterns of living”, (Blake, 1977).

Each rayon was divided into neighbourhoods that formed smaller city organizations. In plans each neighbourhood, besides housing, had corresponding program for 6,000 to 10,000 inhabitants. Each rayon had rayon's centre with corresponding program for 30,000 to 40,000 inhabitants. Term rayon gradually disappeared from urbanism in Croatia at the beginning of the 1990s, along with changes in the Croatian society as well as in its urban planning.

According to the Master plan of Split III from 1970 and according to the Detailed plan of the neighbourhood of Trstenik from 1977 as well, the neighbourhood was planned to house 9 280 inhabitants on 24, 65 ha of land. Planned supporting facilities in the neighbourhood were: a school, 2 kindergartens, a park, a playground, underground garages with 900 parking places, the garage with 379 parking places, doctor's office, a public house, services, trade and business programs, all within the radius of about 400 m or 5 to 6 minutes' walk.

According to the Master plan of Split III, from 1970, rayon supporting facilities and rayon center, whose part is the neighbourhood of Trstenik, were to be built within the radius of about 600 m or 7 to 10 minutes' walk.

In the year 1989, just before the independence of the Republic of Croatia, in the neighbourhood of Trstenik 6 683 inhabitants lived. Out of the planned neighbourhood supporting facilities a school, a kindergarten, underground garages, services and trade programs were realized.

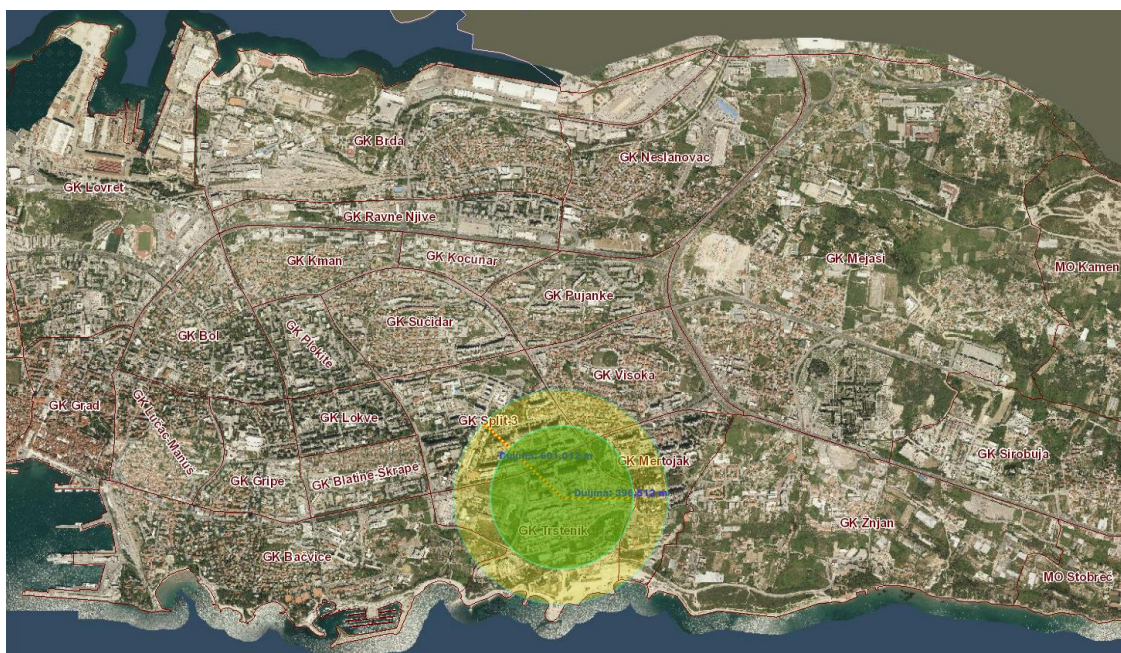


Illustration 1: With use of Split's GIS portal distances from the neighbourhood of Trstenik centre to the school (green) and to the rayon center (yellow) are marked



Illustration 2: With use of Split's GIS portal primary school position and public transport bus lines in the neighbourhood of Trstenik²



Illustration 3: safe walking to school in the neighbourhood of Trstenik

From the illustrations we can see that neighbourhood of Trstenik is constructed as part of the compact city structure that includes

- walking distances to neighbourhood supporting facilities within the radius of about 400 m or 5 to 6 minutes ; safe walking routes to school; walking distances to rayon supporting facilities within the radius of about 600 m or 7 to 10 minutes; vicinity of public transport bus stations for several lines connecting city supporting faculties

We conclude that inhabitants of the neighbourhood of Trstenik for daily life and occasional activities, in terms of education, health, shopping and leisure, in a general frame of limited

² Bus line number 39 is the night line

commuting, have very good possibilities. Long term planning that begun with the competition for urban design, continued with the master plan and the detailed plan gave measurable results for all.

NEIGHBOURHOOD OF KILA

In regard to the Ministry of Construction and Physical Planning initiative for subsidized housing construction authorities of the city of Split took decision to build about 650 apartments on 2, 00 ha in the neighbourhood of Kila. That neighbourhood is situated at the north-eastern edge of the city construction area and has insufficient infrastructure. The base for this undertaking is Master plan of Split (Generalni urbanistički plan Splita) from 2005 and the Detailed plan of part of the area Kila (Detaljni plan uređenja dijela područja Kila sjeveroistočno od Trafo stanice Vrboran) from 2013. Construction started in 2014 and in November 2015 first tenants entered 206 newly finished apartments. At the moment another 162 apartments are under construction. Out of supporting facilities only parking places for about 600 cars and one kindergarten for 60 children are planned.

Since there are no supporting facilities in the vicinity inhabitants are to use either some of the facilities of the closest neighbourhood of Mejaši, or facilities elsewhere in the city for daily or occasional activities and needs. The problem is that road to Mejaši does not have a sidewalk and is dangerous for pedestrians. Additional constraint for the inhabitants of Kila includes badly organised public transport with only one line to the city that one runs every half hour³.

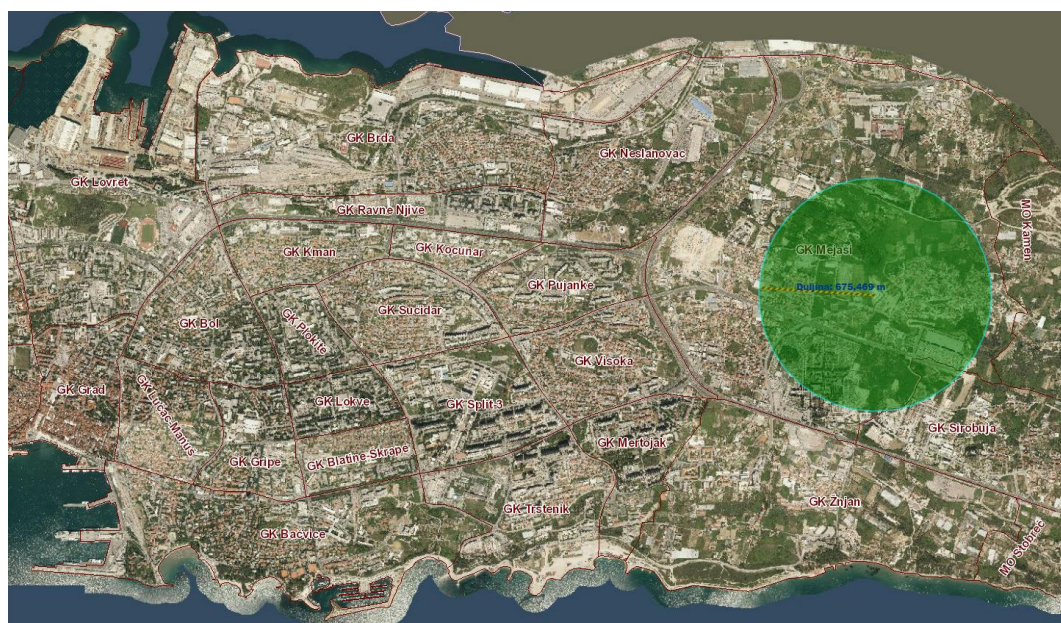


Illustration 4: With use of Split's GIS portal distance from the neighbourhood of Kila centre to the school (green) is marked

³ All lines in Split public transport run every half hour but in neighbourhoods closer to the city centre there are always more lines on disposal.



Illustration 5: With use of Split's GIS portal use primary school position and public transport bus lines in the neighbourhood of Kila⁴ are marked



Illustration 6: unsafe walking to school in the neighbourhood of Kila

From the illustrations we can see that neighbourhood of Kila is not constructed as part of the compact city structure but as dispersed city structure with

- no neighbourhood supporting facilities; no safe walking routes to school; no rayon supporting facilities; public transport bus station for only one line for city supporting facilities

We conclude that inhabitants of neighbourhood of Kila for daily life and occasional activities, in terms of education, health, shopping and leisure, in a general frame of limited

⁴ Bus line number 40 is the night line

commuting, have no possibilities. Absence of long term planning will live bad results in city's fabric and inhabitants' lives for generations to come.

CONCLUSIONS

Issue of economic development of Split poses a great challenge to development of each of its neighbourhoods. If planning and programming of neighbourhoods are not treated as an integral part of an existing city, but as isolated entities, like neighbourhood of Kila, issue of low-carbon future cannot be tackled. Concept of a sustainable city that brings out social and functional diversity is requirement of an era. Therefore construction of neighbourhoods should be part of a compact city concept and it should include all the necessary facilities for daily life in cities. Otherwise inhabitants will be forced to commute for all of their activities which will much increase the use of cars, CO2 emissions and energy consumption and in a long run poor health and poor economic development. "Poor urban air quality is fundamentally local in character and motor traffic is the primary cause", (Hart, 2011). Example of a good practice is the neighbourhood of Trstenik that was constructed as part of the compact city structure, although programmed, planned and constructed in one-party system. We are to learn from it, especially because it represents a long- term and consistent urban planning at its best.

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