

Full Length Research Paper

Spatial analysis of a post-socialist city: Case of Tirana-Albania

Hakan Arslan^{1*} and Vjosa Shehu²

¹Department of Civil Engineering, Faculty of Technology, Duzce University, Konuralp, 81620 Duzce, Turkey.

²Department of Architecture, Faculty of Engineering Architecture, Epoka University, Tiranë-Rinas, Albania.

Accepted 17 February, 2011

This study proposes an analysis model to see how urban spatial configuration in case of post-socialist Tirana City transformed over time. The analysis of city network road and commercial facilities distribution of Tirana City helps us to examine urban land use variation and the urban spatial structure. The study also reviews urban spatial structure model of the city as well. The main principles of space syntax theory are introduced as a method which measures the relations of the pattern in spatial system. The city structure is analysed by developing the main spatial patterns. The new potential areas of the city industrial zones, residential areas and new transport systems are analyzed through space syntax method. As a conclusion, space syntax analysis provide an important contribution to the analysis of urban structures and give the future design parameters for the the transforming city.

Key words: Space syntax, urban transformation, post-socialist city.

INTRODUCTION

Space syntax studies used principles to analyze the designed space and understand the spatial patterns. The space syntax can also be used as a tool that introduce the relationship to underline our everyday experience in the designed environment and the way it functions culturally and socially. Space syntax identifies, represents, and measures the spatial relationships that help us get on with our daily lives. The aim of the space syntax analysis is to arrive at an understanding of principles of spatial design and a critical valuation of precedents and prospects (Kim and Penn, 2004).

Understanding potential communication patterns in a given space allows one to predict which areas will be most central and which can be used to make wayfinding easier (Alexander, 1987). Centrality is an important element of space syntax that which is most central often gets the most activity in the development of Tirana. In this study the concept of space syntax applied as the analysis of Tirana city. The first attempt is to describe the urban spatial structure of Tirana city and latter analysis the urban space with syntactic rules and methods.

URBAN SPATIAL TRANSFORMATION AND DEVELOPMENT OF TIRANA CITY

Urban structure of Tirana city has been changed because of complex factors which consist of politics, economy, sociality and culture. City has grown from single function to multi function. There is a vertical growth caused by higher storeys and horizontal growth caused by outskirts development city, where urban function of the business, commerce, administration and services is integrated (Felstehausen, 1999). As the city grows older there is a reconstruction of urban structure such as redevelopment peripheral areas. The development of Tirana is a settlement space that has extending without any regular city plan and this phenomenon resulted into an irregular urban landscape. So the study focused on understanding the main characteristic of spatial transformation in Tirana City in post socialist modern phase.

Tirana under communist control was a compact, comprehensively planned city structured for a high degree of self-sufficiency. A construction boom started in Tirana after 1992 as a result of releasing land and business buildings to individuals. Large numbers of automobiles and trucks were imported causing severe traffic and space congestion along highways and in

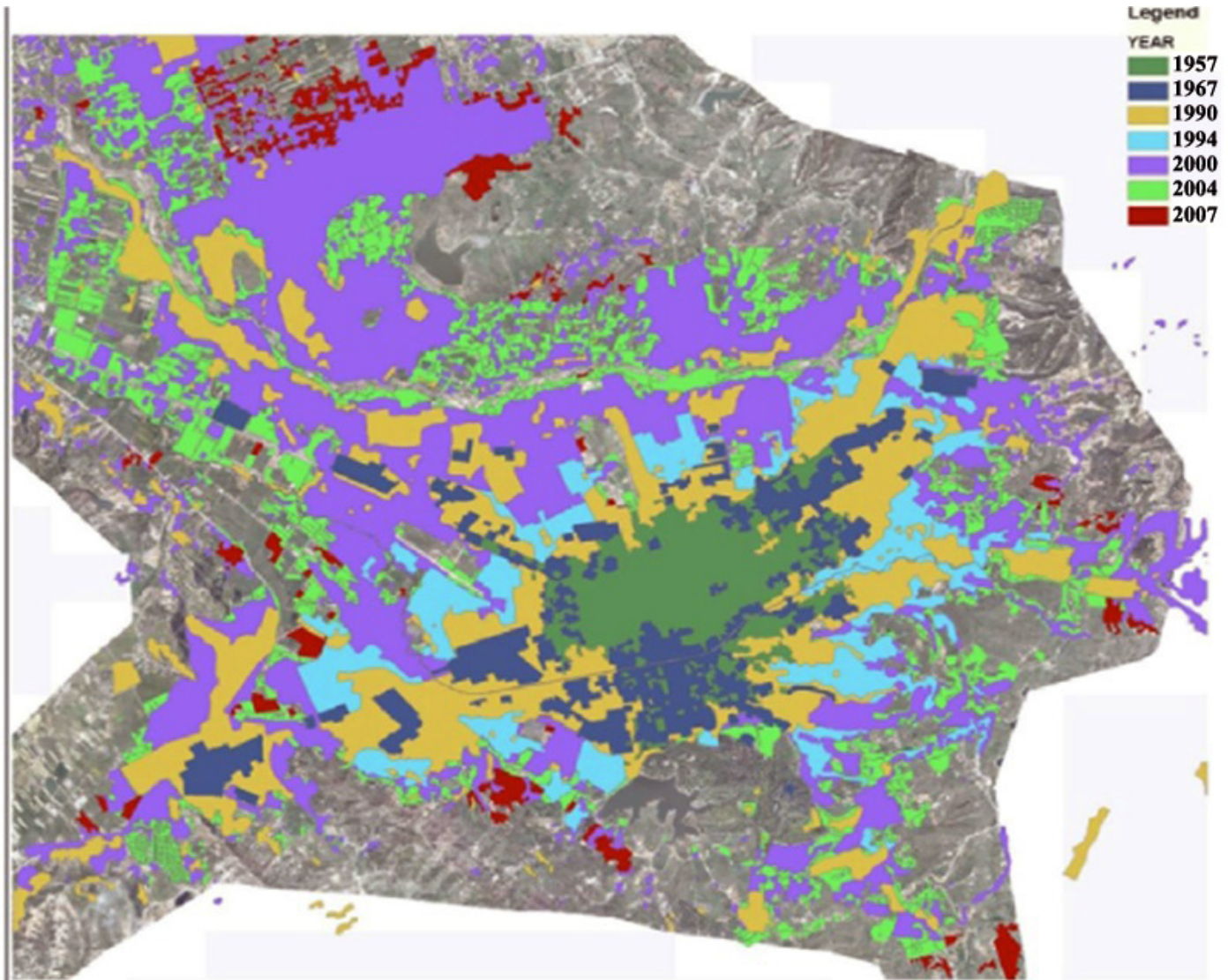


Figure 1. Landuse from 1957-2007.

downtown areas (Aliaj et al., 2003). Tirana's population, counting suburban zones, doubled from 225,000 at the end of the communist period to an estimated 450,000 five years later and rose to more than 600,000 in mid-1999. The urban periphery as well as downtown areas of Tirana became the focus of strong growth pressures. Suburban land in state ownership is often occupied by squatters. Land outside the city but near transportation routes is the first to be occupied because it is the most accessible to transportation, and has the highest possibility of being connected to water and electricity. Exploring the relations between the urban form and the urban processes it seems to go under the main aspects: one of people, forces and institutions that bring the urban form and the second the physical change through time (Driscoll et al., 1994). Figure 1 illustrates the historical period from 1957 to 2007 of Tirana city.

Analysing the development of the city from 1991 till 2005, we will see that there is unprecedented growth that influenced the urban morphology. The most important growing area is in the inner city where the area is densified. Then after 1997 we see a boom of informally developed areas in the periphery and the center. The other areas belong to the new buildings that were created during the communist regime and other commercial and production activities (Soros, 1997). During socialism, the traditional areas were replaced by typical communist residential blocks developed as new extensions of the city.

In the post '90's there was a new fill development in the center and in the periphery, replacing small scale developments and characterised by high rised building, social housing and high income residential area in the periphery. In the last years there are tendencies for the

Table 1. Spatial structure analysis type.

Analysis type	Characteristic
Land use pattern	Land use
Surface model	Land price, etc.
Spatial statistics	Statistical analysis
Spatial morphology	Morphological analysis

creation of the linear city with economic activities. Everything is in the hands of private developers and land owners.

During the socialist period there was a transformation by standardization of typology. In the second phase, industrialization program created regulatory plans for the country. There was a tendency of transforming the city based on the replacement strategy of the old neighborhoods, and later the explanation of the new peripheral areas. After the '90's, the uncontrolled urban process created the unconscious city without shared aims of the community. The areas reflect unreadable urban text for the chaotic pattern uneven texture inappropriate use of buildings typologies (Aliaj et al., 2003). In some areas there is the feeling of "tension" in the use of space.

The development project is a useful urban planning in big city to solve urban problem and to provide new houses. The main objective is to support city of green areas, parking, and the regulation of public areas in residential blocks. This development has an unexpected influence on urban spatial structure such as sudden land price rise, troubled development of suburb of city and so on. There is need to investigate spatial influence of the new development areas and to modeling of urban spatial structure.

SPATIAL ANALYSIS OF TIRANA CITY

Spatial structure analysis

Spatial structure analysis aims to investigate characteristic of urban constituent element on urban space and to analyze the distribution of urban features (Hillier and Hanson, 1984). Method of spatial analysis study is variable on the ground of each research area and is described in Table 1.

Space syntax theory

Space syntax theory is a method of measuring the relative accessibility of different locations in a spatial system (Timmermans, 1997). Space syntax theory can be both considered as an alternative model of space at the cognitive level, and as a practical computational method for the analysis of urban structures and patterns. To estimate the accessibility of spatial structure, there is need to execute axial analysis with axial map. Axial map is

composed of abstract space syntax graph of relationships between streets (Figure 2).

There are important spatial property parameters in "axial map" graph. First of all connectivity is defined as the number of nodes directly linked to each individual node in the connectivity graph. The second parameter, "control values" expresses the degree of choice each node represents for its directly linked nodes. The third parameter "integration" is a value which indicates the degree to which a node is more integrated or segregated from a system (Hiller, 1997). These parameters can be used to describe both local and global properties of a spatial configuration in the sense of integration or segregation.

Spatial analysis of Tirana City

Spatial analysis used to see how urban spatial configuration of Tirana is used. The study examines land use variation and the urban spatial structures with analysis network of city road and the distribution of commercial facilities of Tirana (Figure 3). In road networking, the street of Durrës, Kavaja and Dibra, big Ring are higher value in connectivity and integration parameters. These streets are mostly related with new development plan.

CHARACTER OF PATTERN AS A SPATIAL DEVICE

"Fine and tuning" are the reality of distilling patterns seen in district level. To reimprove the areas there is need for a platform for the installation of a more conscious urban condition. Analysing the main patterns of the development of Tirana mean to study the structure of the city, how it is created during the time. There are five main patterns that represent typical areas of the city (PADCO, 1995), (Figure 4).

First is the Reticular Pattern most found in the west of Tirana periphery. Radial pattern is seen most in the old city and traditional city. The new informal housing are characterised by straight linear pattern. The curved linear pattern constitutes the main inner city blocks, devised by the main streets of Tirana like Durrësi Street, Dibra Street etc. Cul-de Sac pattern is represented in the city center (Figure 5).

A new balance between fragment and continuity is achieved. The axis continuity is not dismissed nor does it aggressively predominate over the internal logic of the urban parts that contributes the axis. Axes as a new line

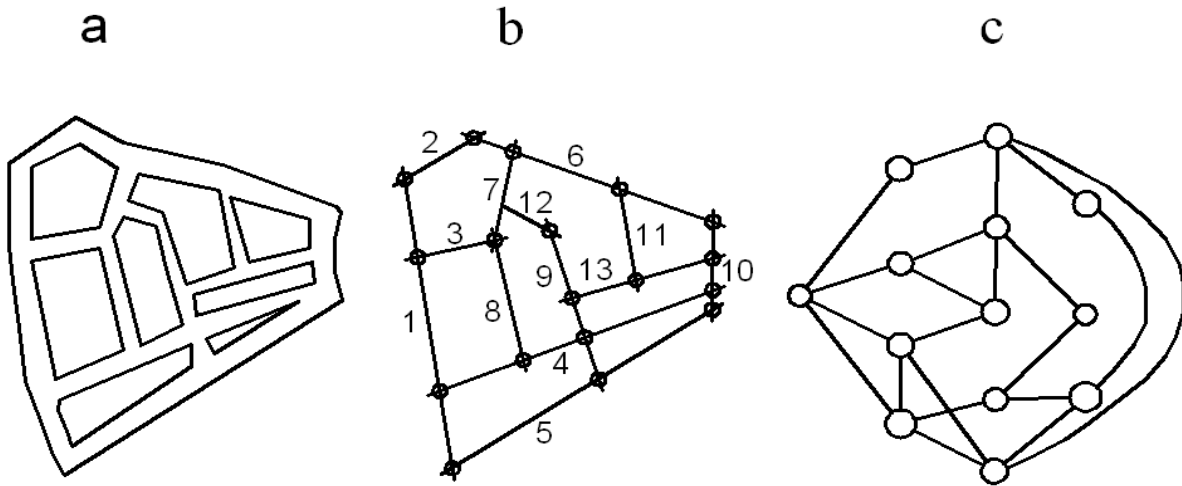


Figure 2. Process of axial analysis.

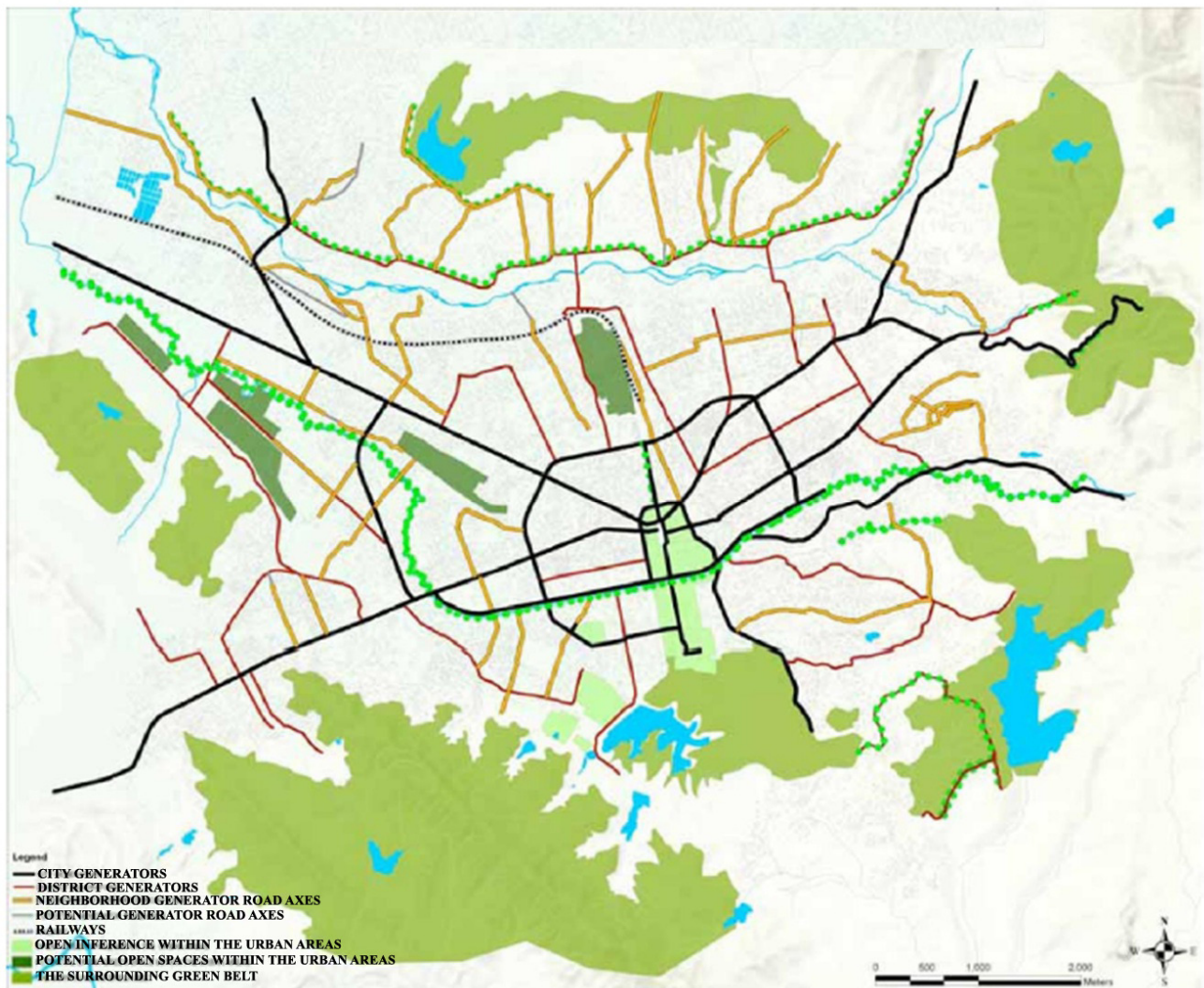


Figure 3. Natural elements insertion and generators of Tirana city.

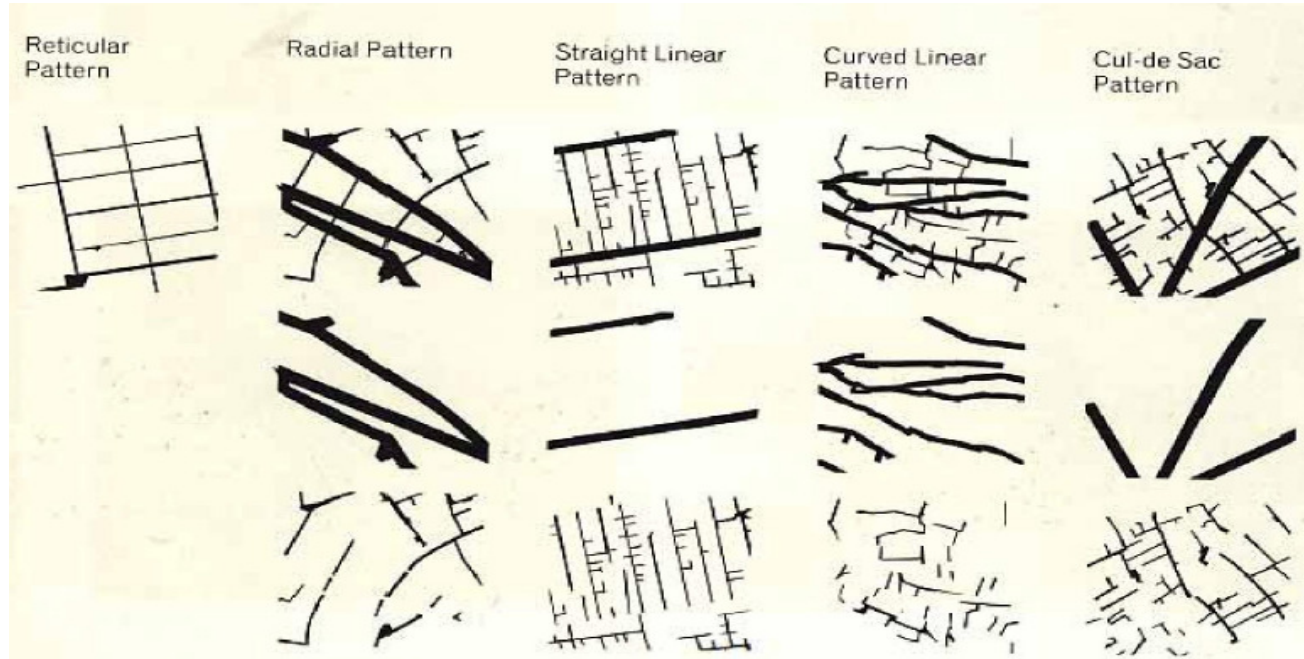


Figure 4. Main patterns used in analysis.

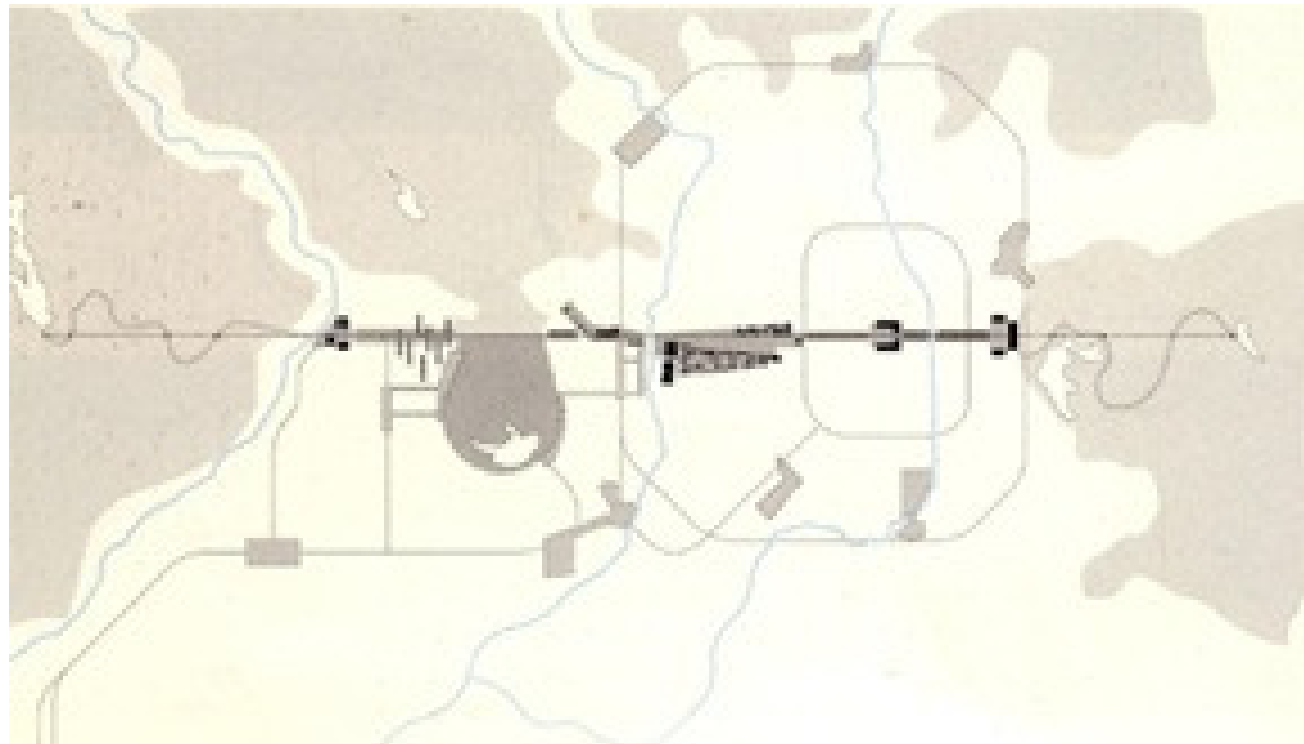


Figure 5. The Tirana axis: A new ideogram.

of gravity are the relation between the continuity and the sequence of fragments along it (Figure 6). The axis used

to counteract with the difused urbanisation offering a new collective experience, affecting the collective

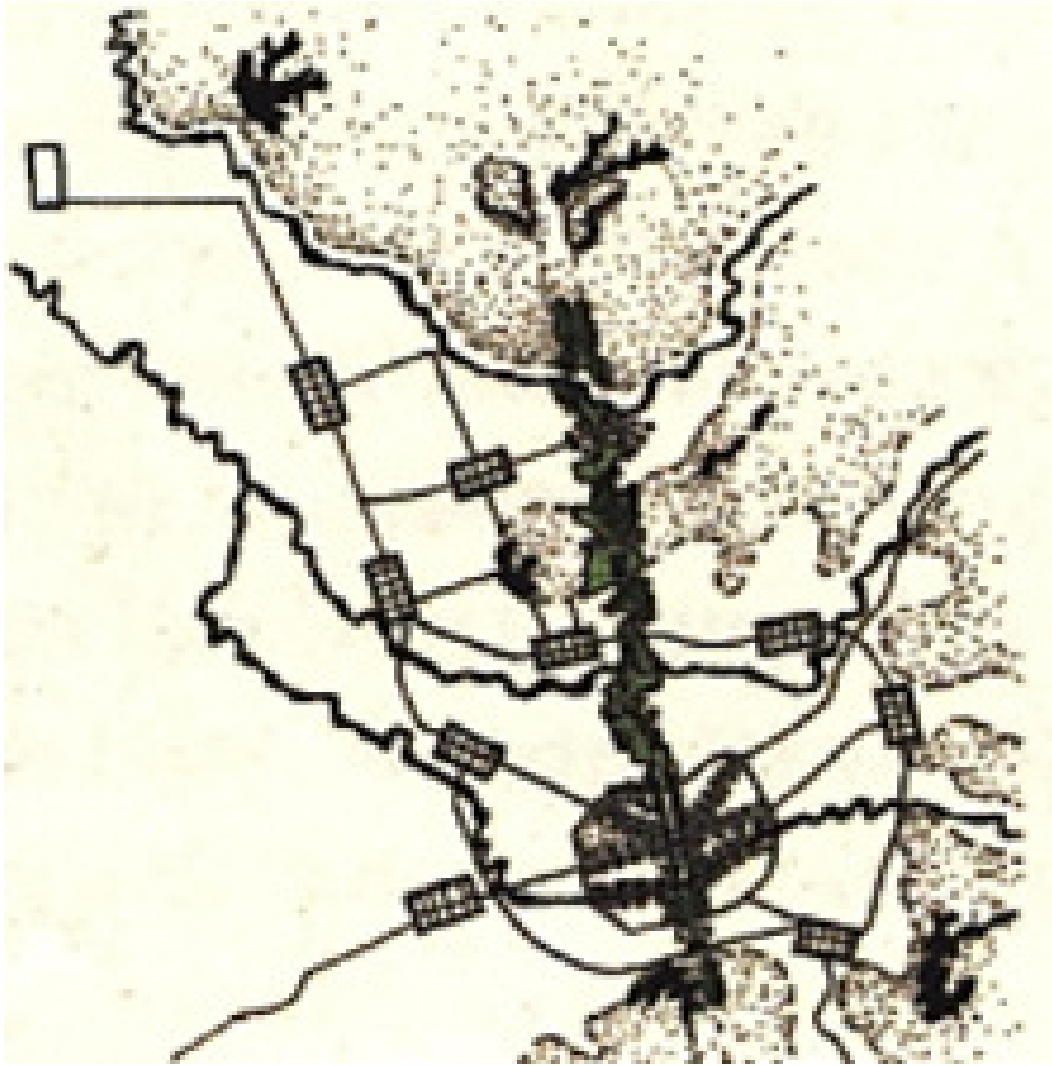


Figure 6. Civic axes of Tirana City.

consciousness, collecting independent urban and landscape fragments, but we should not aim an idealized axis type (Report, 2008).

As we can see from Figure 6 to design the axes latent natural settings are used for restructuring the urban continuum on the territorial scale. The civic axes act as a line of gravity (linear centrality) generating a consolidating force that provide coherence and intelligibility in the metropolitan area.

CONCLUSION

Space syntax could provide an important contribution to the analysis of urban structures. This study investigate urban spatial configuration in Tirana Center with space syntax theory. The result of the study firstly reveals that there is a drastic change of urban spatial structure

caused by extensive development such as new peripheral area and the new axes. Secondly, the changes of urban spatial structure have mutual relation with the change of commercial landuse and patterns. The development of Tirana City is predicted to extend in north and north-west of the city. Space syntax analysis defined the new residential areas, new potential areas for industry or economic zones, new urban areas, best transportation system, and finally new centers of the city space. It can be pointed out that, as in many other countries practices, starting from space syntax analysis to masterplan can be used as a tool and base for the future urban planning and spatial design of the city.

REFERENCES

- Alexander C (1987). *A New Theory of Urban Design*, Oxford press.
 Aliaj B, Lulo K, Myftiu G (2003). *Tirana the challenge of urban*

- development, Tirane. P. 10.
- Driscoll J, Ersenkal O, Iadarola S (1994). Land Development Strategies for Residential Development: Case Study of Tirana, Implications for a National Strategy", Washington, DC: PADCO, Inc., for USAID/RHUDO.
- Felstehausen H (1999). Urban growth and land use Changes in Tirana, Albania: With cases describing Urban land claims, University of Wisconsin-Madison.
- Hillier B, Hanson J (1984). The social logic of Space, Cambridge University Press.
- Hiller B (1997). Proceeding of the first International Symposium on space Syntax", University College London.
- Kim Y, Penn O (2004). Linking the spatial syntax of cognitive maps to the spatial syntax of the environment, Environment and Behavior A.
- PADCO (1995). Preliminary Structure Plan for Greater Tirana, Tirana, Albania.
- Soros G (1997). Toward a Global Open Society, Atlantic Monthly, 281:1.
- Timmermans H (1997). Decision Support System in Urban Planning, E&FN SPON.
- Theoretical and practical Issues of Urban Design in Albania, (2008). Report.