

Territorial and Urban Evolution of Economic Zone along Durresi Street (Kamza Junction-Kashar Turn)

Agron Lufi¹ and Ogri Mane²

1. F.A.U Polytechnic University of Tirana-Albania, Tirana, Albania

2. Faculty of History and Philology, University of Tirana, Tirane- Albania, Tirane, Albania

Abstract: The territorial expansion of the economic zones along Tirana-Durres corridor, is considered as clear evidence of regional economic development. Since the first 10 years of 1990-2000, the need for a functional planning process was clearly noted. In the early 2000's, the linear planning on both sides of the highway, from KJ (Kamza Junction) to KT (Kashar Turn), was the real demonstration of that need. This article is a first effort towards an indirect analysis on spatial urban development processes of the last 20 years, indicated by development urban plans for Greater Tirana. This analysis concludes on the defects on integration of this area into the existing structure of Tirana, which are reflected in the new regulatory plans during 2012-2016. This article identifies the functional zoning phenomena, forms and rates of parcels occupation, analyzed through the land use indicators coverage. The urban analysis is focused also on identifying the achievements and failures on the design of spatial structures of social importance. This analysis intends to lead towards a more detailed study of the ways that enable the integration of this industrial area with the residential zone. It is considered as an attempt, which raises a number of issues, for helping the planners, architects and city administrators, involved in the planning and implementation of Partial Urban Plans.

Key words: Industrial area/zone, industrial park, functional and zoning planning, urban indicators of land use.

1. Objective

The purpose of this article, as reflection of an already started study, consists on identifying the process of new industrial areas evolution, in relation to the accelerated development of various residential, commercial and service structures in the today's suburbs of Tirana. The territorial development period, object of this study, belongs to 1990-2020. A spatial analysis method has been used for the demonstration of this development, the needs and requirements for new industrial territories, but on the other hand it is intended to understand also the methods needed for restricting these industrial territories, in order to avoid the permanent conflict between industry and housing. Analyzing the processes of Tirana Master Plans and theirs output, the authors identified the necessity of a reevaluation of industrial sector separately, by taking into account

different perspectives according to contemporary development. This process should take in consideration new concepts for the implementation of industrial zones, principles and industrial parks concepts. Likewise, the study evaluates the efforts on the introduction of new international codification methods in the planning of industrial territories as well as the raising of technical requirements and standards in line with the current sustainable urban environment requirements. In this regard, the study aims to stimulate and initiate other studies focused on industrial areas and parks, aiming to complete the complex economic, social, planning and environmental studies.

2. Impacting Factors on Territorial Evolution

The methodological approach of this article, through its subchapters, aims to highlight the role of direct shaping factors of industrial area under study, as well as extended ways and their typical industrial morphological characteristics.

Corresponding author: Agron Lufi, Professor, Dr., research fields: architectural design and urban planning.

2.1 Historical and Theoretical Factors

In determining the development features of an industrial area, with similar sizes to those of Tirana city, we consider taking into account the comparisons, as well as the historical and theoretical conclusions reached up to now, on the planning process of cities with linear development.

The ideas of industrial structures and urban areas, of linear development, are encountered since the linear model concept proposed by Arturo Soria y Mata, presented in the publication “On the Linear City of Madrid”, (1882). This concept establishes that the functions of the city, housing, trade and industry, are regulated along the uninterrupted axis, “The Ciudad Lineal envisioned the modern city as an endlessly continuous organism based directly upon the transportation arteries of the region, but also with its domestic life well insulated from traffic” [1].

In the early 1900s, Tony Garnier adapted the linear development scheme to the “Industrial City” (1901-1904), by P. Gras [2], in this scheme the industry is located separately, but the housing is developed linearly along a major axis that passes through city center. Similarly, such ideas are also elaborated and presented by Le Corbusier, in his project “La Ville Radieuse”, where the linear industrial city develops along a main corridor, where housing, the protective green belt and the industrial belt, are developed in depth, parallel to these roads [3]. The reputation of the linear city as a theory and pilot project, continued by the end of 30s and 40s, when critical judgments on the linear city began to emerge, especially in relation to the lack of centrality, which is defined by such urban structure.

With regard to the concept of linear city or industrial areas with such extension, nowadays, it can be considered as appropriate to accept the judgment developed by Doxiadis C. A., who since the 60s, in his article “On Linear Cities” (1967) [4], admitted that: “The linear city is unfeasible. I am very firm about this point, because the surface of the Earth is three

dimensional, the creation and function of linear city is impossible. Any connection with functions, not situated along the axis of the city, would disrupt its uniformity and linearity.” [4].

In his comments on the linear city, “Good City Form” by K. Lynch [5] has to be mentioned, where he states that: “The linear form does appear at smaller scales, such as commercial strip ... It also occurs as a ‘MegaForm’ in some countries—a connected string of metropolitan regions. At the city scale it has certain serious flaws. The distance between elements is much greater than in a compact city and the choice of connection or of direction of movement much less. This may explain why the linear form does work at a smaller scale, much less...” [5].

Despite the linear developments of urban structures, observed in certain cities and industrial areas of some countries, nowadays, based on the development of industrial park model, most of the planners agree that such an industrial structure can be better implemented in compact territories and of central development typology.

In the present days the cities and industries with spatial extension shapes of large dimensions, are facing the strong dynamics and changings. According to the research study performed by T. Hatuka “Industrial Urbanism, Typology, Concepts and Prospects” [6], there are three prototypes of spatial forms needed to be distinguished in the evolving dynamics between city and industry: integrated industrial space (industrial areas as enclaves within the city), adjacent industrial space (industrial areas located close to the city) and the autonomous industrial space (industrial areas, industrial parks, out of the city).

In the case of the first industrial zone of Tirana, we believe that the developing territory is attached to the city and despite the economic-industrial profile of linear development, the integration happened by attaching residential zones adjacent to industrial zones.

According to T. Hatuka and Ben-Joseph “New Industrial Urbanism, Designing Places for Production” [7], the planning of industrial clusters tends towards

the concept of Industrial Park, which is located or developed, in many cases, as a separate Cluster, to a certain extent, detached from the city [7].

One of the aspects that has to be highlighted by this short historical overview of industrial area, created since 1990's, as object of this study, is the fact that the development has proceeded spontaneously, influenced by factors of production, located in the extreme axes of the city but, always along the corridor Tirana-Durres and exposed towards the influence of the existing free territories, along it. Many countries with industrial development of medium rate, have managed to integrate this type of development, through a proper planning process of the industrial zone, in parallel with the development of the city that is not the case of our territory. The achievements of the contemporary planning concepts, abroad, applied for the development of industrial zones, since the 1920's, represent the examples of valuable theoretical guidance for us, that can lead us, to the reconstruction of industrial existing zones into industrial parks [6]. Certainly, a further theoretical progress of the concept on development planning and their shifting from industrial zone to the Eco-parks [7], represent for us, a

long-term goal for the upcoming developments of new territories outside the city of Tirana.

2.2 Economic Factors

Since the beginning of the 90s, the advancement of economic opportunities and growing interest of investors and business companies aimed at the realization of new industrial structures. This directly impacted on the raising of interest in legal and frequently illegal land occupation (see Fig. 1). This social process has been accompanied by an unplanned massive increase of residential buildings and services around them. The land ownership typology of these areas, noted also in the surrounding villages, has been considered an economic factor that led to chaotic solutions undertaken, but in many cases, gradually brought them to a proper planning demand.

The existence of labor forces nearby the industrial zones, has been considered as an important factor for their development and their transformation into powerful centers of production, which avoided labor movements from long distances. It is considered of great benefit for the industries, the use of labor forces coming from the capital city, by means of public and

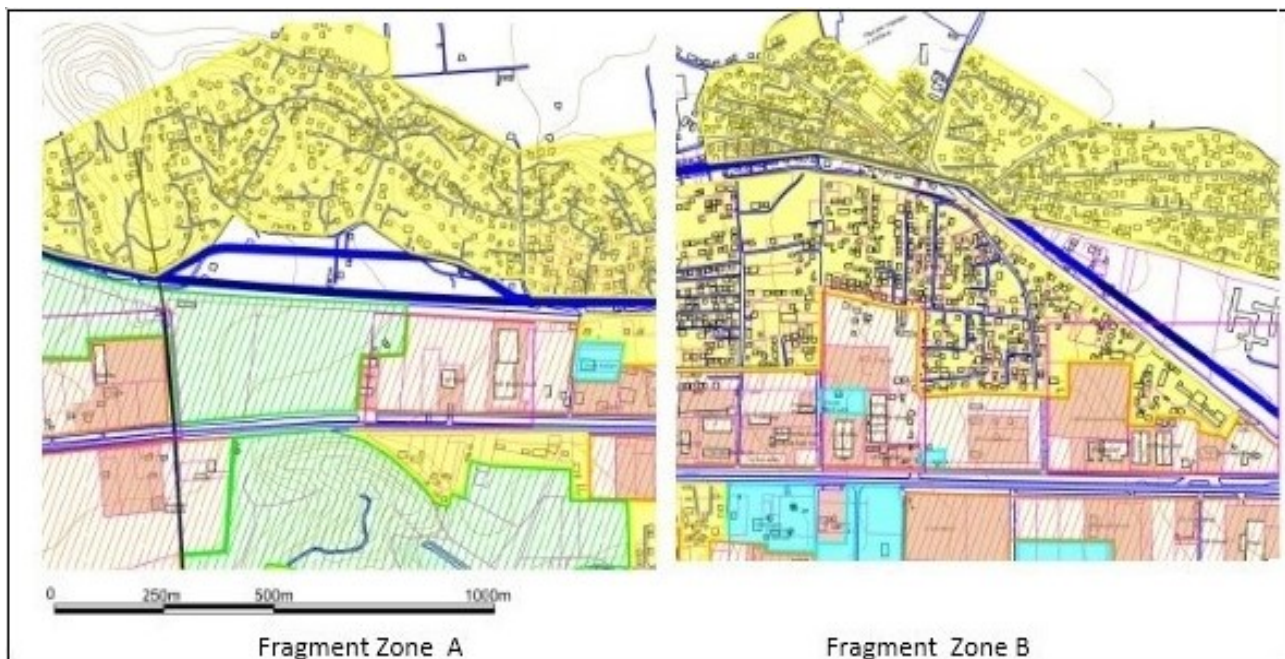


Fig. 1 Fragments of industrial zones with urban agglomerations of dwellings "Sprawl" (2004) attached to the industrial territory (data processed by authors) Ref. [8].

private transportation, confronting existing distances from city to industrial settlement, 6-10 km away.

In the 90s, a growing interest for genuine industrial constructions and increased investment capacities were recognized. These were frequently materialized in this area, and often supported by the financing instruments owned by the local and foreign entrepreneurs (the case of Coca-Cola Enterprise). They became, by the end of 90s, enterprises of considerable size, when the industrial installations were located in larger lots of big surfaces. Also the innovative building construction technologies were introduced, always at the front access of the linear area (see Fig. 1). A significant development impact in this area was given by light manufacturing enterprises and industrial services, such as: vehicle repair services, industrial enterprises of wood working and furniture production, food industry installments, textiles plants etc. (see Fig. 2).

The setup for the material, construction and prefabricated industry was a new phenomenon that happened immediately as expansion of the new territories of industrial zones. Almost in all cases they were located at the first front of the road, with their characteristic impact on the pollution of the territory.

Considering the industrial typology, respectively with territory occupied, it is concluded that:

- Proportionally to the typology of territorial expansion, by 2004, the construction industry was the

dominating one, with a territorial extension of 36.6 ha occupied while by 2020 it has been reduced in 22.5 ha.

- The secondary industries and energy sector have occupied a limited territory. An exception was the light industry with an increase from 17.1 ha (until 2004) to 24.4 ha (until 2020).

- Thanks to a relevant economic development boom at the beginning of 2000, especially related with the business and trade sector, a further need of territory expansion trend from 29.2 ha (until 2004) to 71.1 ha (until 2020) was clearly noted. The demand for territories was almost doubled, which still goes to dominate today in this area.

- The total area of the industrial zone was significantly changed from 114.8 ha (2004) to almost double to 213.3 ha (2020), and the comparative analysis of enterprises number is followed by the growing processes: from 106 enterprises in 2004, to 310 enterprises in 2020 (see Figs. 7, 8 and 11).

2.3 Territorial Factors

The growing demands for industrial territories outside the city were largely impacted by the economic phenomena of existing old state industries degradation and collapse, which were located within the city. These enterprises, which were included within the boundaries of the city of Tirana, in territories were spread out without any criteria, by occupying an estimated territory of 270-295 ha (see Fig. 5)

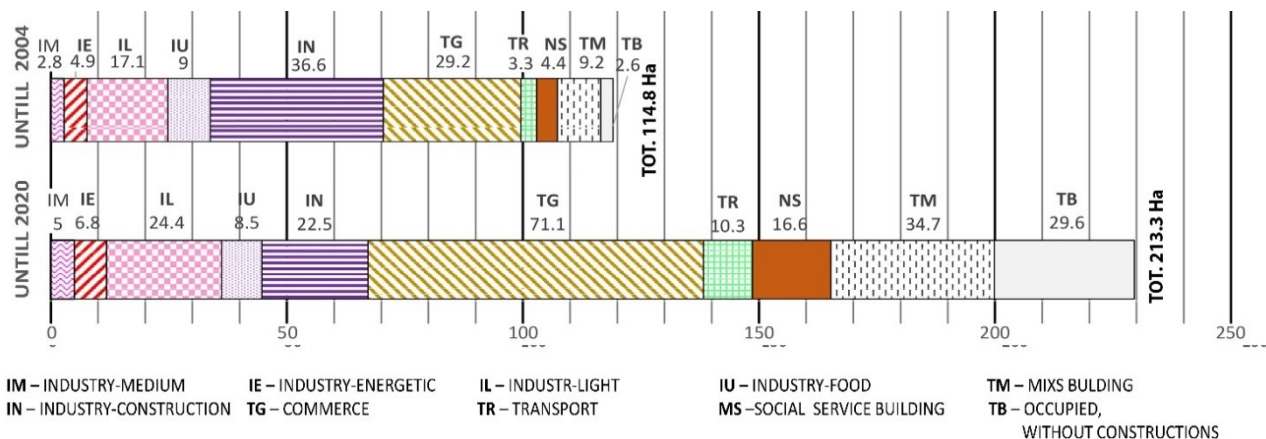


Fig. 2 Comparative trend of the economic parcels territories over the years, according to the economic activities typology (2004-2020) (the data processed by authors) Ref. [8].

These territories with old industrial facilities with outdated technologies were merely abandoned by the state enterprises.

They quickly became the object of privatization by the state and objects of environmental transformations towards the urban forms of developments as new housing constructions (see Fig. 5). [18]

Industry calculations within the city are extracted from TR030, chapter Tirana Polycentric, Strategy of Perspective Planning of Large Service and Business Centers of the City, Tirana TR030, development of Territory Planning, General Report, Tirana Municipality, Stefano Boeri Architetti, UNLAB, IND, 2016. The extinction of these territories within the city of Tirana and the extension towards the periphery has been considered as a very positive development in improving the urban and environmental structure of the city [9].

The occupation of new territories outside the city by investors, with relevant economic power, pushed them to the acquisition of properties (lands) in low price, by creating small parcels. The land prices trend at that time ranged from 10-20 Euro/m², raising in a very sustainable going with a gradual increase in the early 2000s in the range 30-50 Euro/m² [8].

The orientation of new enterprises parallel to the main road (corridor) to Tirana, made in evidence very soon the tendency for an advertising and symbolic representation of the image of private firms. These was accompanied by the development of new typological and architectural forms, which constantly presented an ever-changing architectural landscape scenario towards the entrance of Tirana. [10]

Urban development of Tirana directly related with the demographic boom of 1990-2011, showed that the population of Tirana was doubled, from 280,000 inhabitants in 1989, to 596,704 inhabitants in 2001, and reached 763,560 inhabitants by the end of 2011, respectively, according to the census of 1989, 2001 and 2011 represented in the edition of the book [23]. The morphologies of the residential areas around this industrial zone are characterized by agglomeration of

spontaneous and mass (one-floor) buildings, made on territories of legal ownership, but often even illegal, in morphological analogy with the well-known "Sprawl" phenomena (see Fig. 1).

2.4 Infrastructural Factors

The first emergency phase of the industrial zone setting up in the 90s has been faced with an obvious lack of infrastructure, transport lines, communication hubs, as well as the insufficiency of resource availability, power and water supply infrastructure, waste water treatment plans. Tirana-Durrës corridor, started as a highway with 2 + 2 crossings sections, without secondary side roads. It was the only transportation corridor used either for national communications or for the functionalities of the area nearby. The two main intersection junctions and transversal roads towards the internal part of industrial zone and the surrounding residential areas were insufficient and out of technical conditions. After the 90s the developments of industry sector beyond the Kashar area, towards Vora, Durrës and Airport direction, identified the urgent need for the first reconstruction of the highway performed at that time. In the early 2000s, to other two secondary side roads were also constructed, by giving full independence to the transportation of the companies located on each side of the main road. One of the main infrastructure obstacles, the railway transportation, identified in parallel with the secondary road and with the industrial zone, is fully collapsed and out of work, since the beginning of the 90s till now.

In many studies completed over the last years, the elaboration of the planning concept beyond the limits is well noted, which are defined by the infrastructure lines. Nowadays, with the condensation developments of industrial systems, the concept of landscape assessment and ecological conservation, prevails over the infrastructural one. For this reason, the aim is to have urban and architectural project developments offering the future ecological perspectives, in order

to manage the contradictions generated to this process [11].

With regard to the urban infrastructure of the city of Tirana, in the study reports prepared by international researchers, Project for Tirana Thematic Urban Planning [12] highlighted the fact that the investments, made before the year 2000 on water and energy supply infrastructure, have been spontaneous, not sufficient and not integrated with the other complex infrastructural project plans. The partial investments were also characterized by a lack of multifunctional thinking needed to assure the functioning of both of them (industry and city).

2.5 Growing Development Factors of Private, Commercial and Services Sectors

At the years of 90s there was a rapid growth of the commercial centers and shopping malls, as a demand indicated by the new urbanization model. This trend was quickly followed by an increasing of social, commercial, service infrastructures, located along the road. The transformation of existing business structures, despite the modest development at the beginning of 90s, was significantly grown up since the early 2000s, with the boom of new commercial/shopping centers such as: QTU, MEGATEG, CITYPARK, which are a real demonstration of multifunctional models application (commercial + recreational). This development model became more dominant, by seeking for more industrial territories and by occupying from 29.2 ha of TZI (2004) to 71.1 ha (2020) (see Fig. 2).

2.6 Legal Factors

The beginning of 90s has been a very challenging period of territorial developments of particular relevance, characterized by a lack of administrative rules and urban legislation not yet amended. The existing rules could not respond to the expectations deriving by the social-space aspects of natural environment with built urban environment, industrial

and social zones, recently developed areas, finding themselves in contradiction, mostly because of lack of planning [13]. Based on the well known Law No. 7501/1991 “On Land” began the process of land ownership by reorienting the livelihood and production interests, which were considered a difficult process until the late 90s. Even though, neither the property compensation and return to owners law, nor those on urban residential planning have had any positive and regulatory impact throughout the 1990. Laws on large-scale territorial planning, at that time did not exist. The administrative institutions in charge with urban planning were weak and the lack of professional and institutional capacities to manage the issues at that time was an added problem.

The drafting and approval of Law No. 7693/93 “On Urban Planning”, and Law No. 8405/98 “Urban Planning” amended, were the first step towards a building up of the system of laws focused on urban planning and territory management [13]. The finalization of this legislation package was the approval of Law No. 10119/2009 “On Territory Planning” [14]. A rapid growth of construction activities was recognized from 2000-2010, accompanied by efforts in establishing a formalized construction sector and starting the drafting of the first Regulatory Plans as the only instruments that would stop the informality. Law No. 107/2014, on “Territorial Planning and Development in Albania” and Law No. 28/2017 [24] on “Some Changes and Additions to Law 107/2014” [25], completes the legal framework into force needed for the territory planning and city administration in Albania.

3. Development Dynamics in Urban Planning Process in Relation to the City and Industry

3.1 Urban Planning of Industries as Part of Tirana’s Master Plans

One of the most specific problems of the analysis regarding the relationship between city and industry, should be the definition and features evidence on

confrontations between: the territorial expansion of industry and city, industrial, social and recreational zones under the conditional need for a: (1) spatial, (2) infrastructural and (3) environmental integration, within the long-term development context (1990-2020). The extreme confrontation is impacted by the lack of housing planning in areas with informal constructions, inside and outside the city (in suburban areas).

Therefore, this article was considered of relevant importance for the demonstration of this development dynamic through the synthetic description of regulatory city and regional plans with a direct and indirect impact on the planning processes of the industrial territory [15].

3.2 Regulatory Plan of Tirana 1989

At the beginning of 90s, this Plan has been considered outdated and out of the time context. It was neither able to introduce and manage new urban phenomenon, to resolve conceptual solutions for urban expansion of cities, nor give any solutions of regulatory character to these confrontations. Referring to the dichotomy of urban areas, industry-city, housing-recreation, infrastructure-services, during years 2000-2020, new urban solutions on the city planning and management were developed. These suggestions were imposed during the last 20 years as a result of the new circumstances of ownership, the way how the land was occupied and used, as well as the new boundaries of the city and its management.

The conceptualization of a large integrated structure was developed at the new master plans of the 2000s, at the time when the planning process of Tirana was elaborated within the context of Greater Tirana [17].

3.3 Urban Regulatory Plan Tirana, Final Report, Regional Consulting (2008)

In this context, the idea developed by the Austrian Regional Consulting plan was the first tentative for the integration of northeaster's Tirana structures. A special merit on this goes to the study performed on the

in-depth planning for the full integration of the areas around Tirana, in particular those of northeast [16]. The contribution of international consultations and advices during these years has been necessary both in terms of concept and qualification of planning structures.

3.4 Development Master Plan of Greater Tirana, PADCO, Valu Add Management Services, Mix Tecnic, Financed by the World Bank (2002) [17]

This Master Plan is widely recognized for its new urbanization planning of Greater Tirana in accordance with established borders to the limits of 12,000 ha. The Master Plan is based on the integrated planning principles of suburban territories, as new spatial structures that would be joined to the old structures of the city [17].

The Master Plan was a real effort in harmonizing the concept of radial and concentric structures by including the industrial zones within the orbital ring. It includes without contradiction of the industrial areas within the orbital ring and gives green light to the studies of Metropolitan Tirana (see Fig. 3).

The Greater Tirana plan elaborated by PADCO, represents a great interest by the concept approach of including the eastern industrial zone, inside the orbital ring and into the north urban part Tirana. This study has foreseen also, a north extension of the industrial zone in the middle of it. This enables the perspective development of industrial activities towards concentric radial structures.

3.5 Tirana Infrastructure Modernization Project [12]

This study, funded and conducted by the Japanese government, provides an in-depth preliminary assistance needed before managing process of regulatory plan, within the context of Greater Tirana borders, as the right path towards the implementation idea of Metropolitan Tirana.

The study offered the right solutions to the investment needs for the future reconstruction and infrastructural perspective development, within the existing Tirana

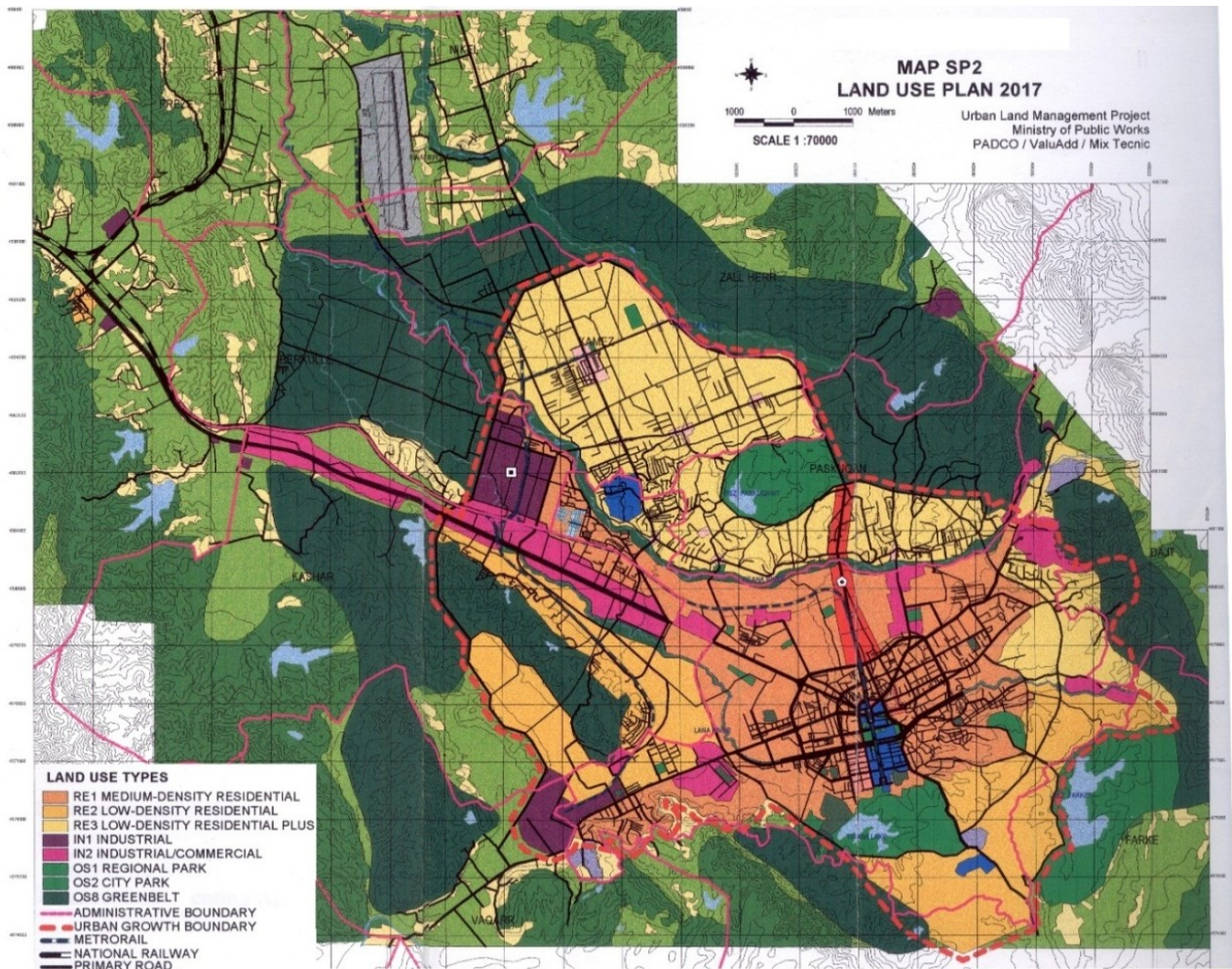


Fig. 3 North-western industrial zone. Urban territory management project.

Strategic plan for Greater Tirana. Main Report 2002. PADCO/Valu Add Management Services/Mix Tecnic.

borders. The project is implemented by Municipality of Tirana, and is considered as a supportive instrument for a future drafting of the regulatory plan in full line with the balanced strategies of urban development towards the Metropolitan Tirana areas [12].

3.6 General Local Plan of Municipality of Tirana, 2012

For the first time the plan was developed by taking into account the transformative factors of urban area, in the 15 years scenario of territory development, in the space limits of 4,200 ha [9].

A concrete analysis and proposal on the transportation infrastructure and model of social facilities development, was also carried out by the plan. Within the existing

boundaries of Tirana, the plan was faced, firstly, with new forms of land use and indicators of development for existing housing territories in the center, and informal territories in the suburb. The plan showed the interesting ideas for the management of degraded industrial zones to the transformation into residential block or polycentric urban spaces and squares of social functions [9].

Regarding the extension of industrial zone along Tirana-Durrës corridor (see Fig. 4) the plan recommended ideas for spatial development throughout the perpendicular areas such as Laknas and Rinas, in accordance with the Greater Tirana plan prepared by PADCO, but without setting rules for development, as this area was still not part of Tirana's administrative territory.

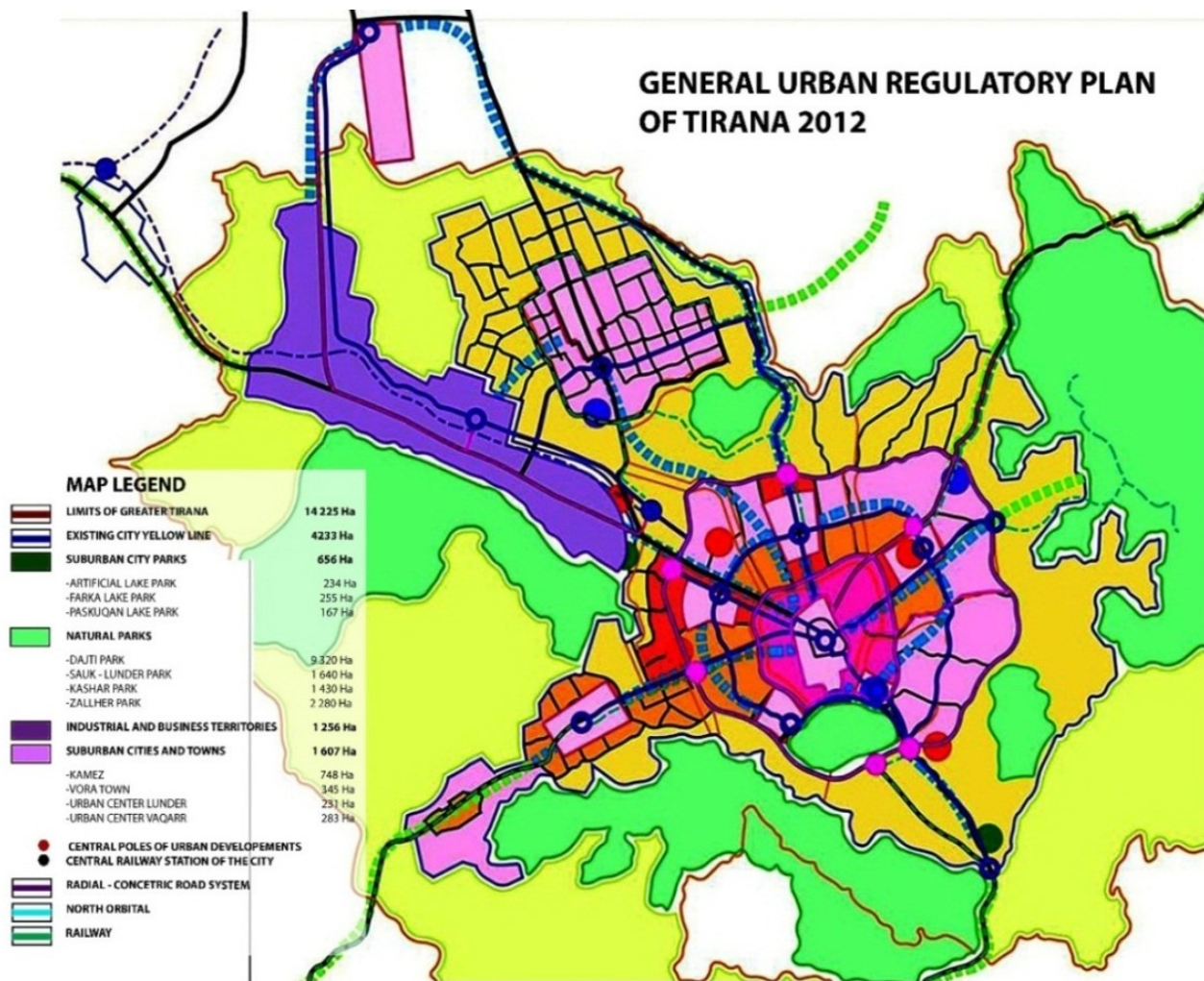


Fig. 4 General local plan of Tirana, Economic Zone, existing situation and opportunities for development in 2012 [9].

The plan had some administrative limitations with regard to the redevelopment of suburban areas. Nevertheless, it reached to outline the new concept idea for the integration of green public vegetation, natural and suburban parks, around and nearby Tirana [9].

3.7 *General Local Plan, General Report, TR030, UNLAB UND, 2016 Municipality of Tirana, Stefano Boeri Architects [18]*

An important moment of relevant importance for the current planning processes of Tirana is the drafting of General Local Plan of Tirana TR030. It offers a new vision for territory development within the boundaries of Greater Tirana. Moreover, it considers Tirana as a metropolitan, polycentric and intensively

developing entity. The plan has a huge advantage related with the extension of administrative boundaries of territory under planning process, by including all suburban areas and residential centers around Tirana, within a territorial coverage of more than 12,000 ha (see Fig. 5). The spatial vision is elaborated by the Plan, based on 5 territorial systems: Urban System, Natural, Agricultural, Aquatic and Infrastructural [18].

With regard to suburban territory, the plan included all areas built up to a medium density, as well as industrial and commercial buildings. In the chapter: General Local Plan Tirana 2030, Territorial Strategy [18], there can be found proposals, regarding the development of former industrial areas, potentially transformable in urban and suburban areas. The strategy

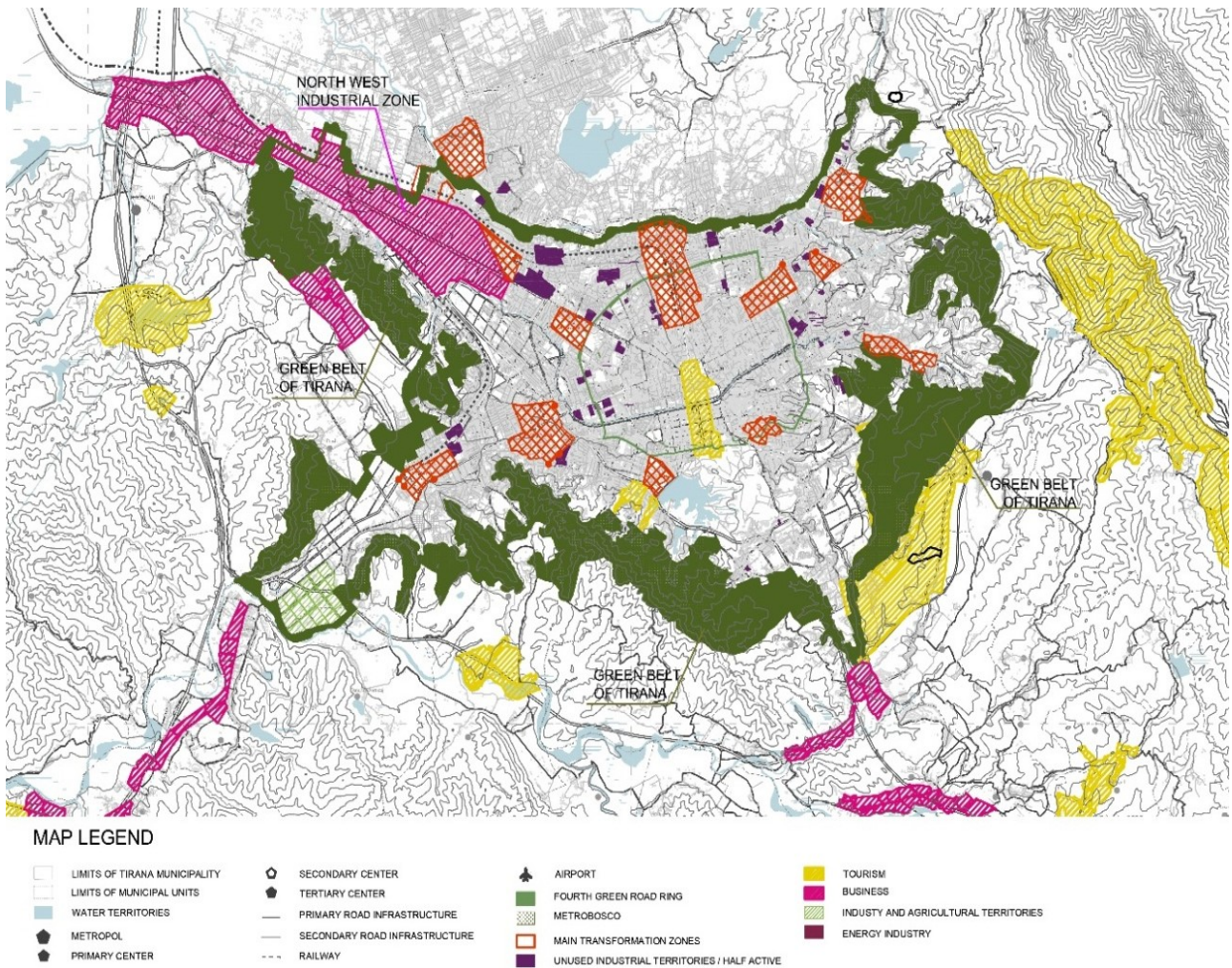


Fig. 5 Polycentric and green ring spaces as foreseen by the Regulatory Plan TR030 (source: General Local Plan 2016, Map of Priority Development Area) [18].

foresees concrete plans for the gradual displacement of productive industrial activities and their transformation into spaces for polycentric centers, spaces of socializing, sports training, tourism development, etc. (see Fig. 5). The plan does not deal with the principles of transformation and regulation of the existing industrial zone along Tirana-Durres corridor.

According to the planning process in this study are foreseen:

- A complex and modern road infrastructure system to respond to the future 30 years’ development projections was designed;
- The concrete planning and concept of the green belt development—Bosco Orbitale, extended along the whole suburban areas of Greater Tirana and

considered as a perspective dominant space for public recreational activities (see Fig. 5).

4. Regional Studies Contribution on the Integration of Tirana’s Industrial Zone

In the studies conducted by the end of 2000, some international authors have clearly identified the need to develop regional studies by integrating the regional and local aspects. They intended to take into account the characteristics of urban settlements and industrial zones along the Tirana Durres corridor, always, when undertaking city development projects and plans. A special merit in the process of Tirana development based on the integration approach, in particular to the industrial zones along the highway,

was given to the regional study of Tirana-Durrës territory boundaries.

4.1 Sustainable and Integrated Development of Tirana-Durrës Region (2007, Landell Mills-Buro Happold) [19]

The plan defines the initial development nucleus and poles, including the drafting of an initial masterplan that will help further to complete a regional study. Regarding the industrial zone of Tirana, its main characteristic is the hypothetical uninterrupted development of the area from KJ to KT (first phase 6.5 km) and from Kashar Turn to Vora (second phase 5.25 km), as it is the nearest economic zone of Tirana. The plan fully supports the idea of linear development of industrial zone with extensive expansion outside the city. As a result, the plan inevitably creates a problematic urban belt area, with a length of 11.7 km (KT (Kamza Turn)-Vora), showing us the generating development tendency of a linear Tirana.

4.2 Integrated Inter-sectorial Plan for Tirana-Durrësi Area, AKPT (National Agency of Spatial Planning)-MZHU (Ministry of Urban Development) 2018

Within the context of regional studies with wider boundaries, by supporting the integrated vision for the development of Tirana-Durrësi metropolitan region, the strategic plan is drafted by the AKPT and the MZHU, as the finalization of this approach [20].

The plan approved in 2020 is a complete framework document of the territorial developments that occur in Tirana-Durrësi region, which sets out a long-term and qualitative development model.

Inevitably, the plan will have a positive impact for a better planning of industrial zone Tirana-Vora, planned to be a primary economic hub, outside Tirana, based on the triangle components: industry-housing-environment. But this process needs the compilation of more detailed planning studies.

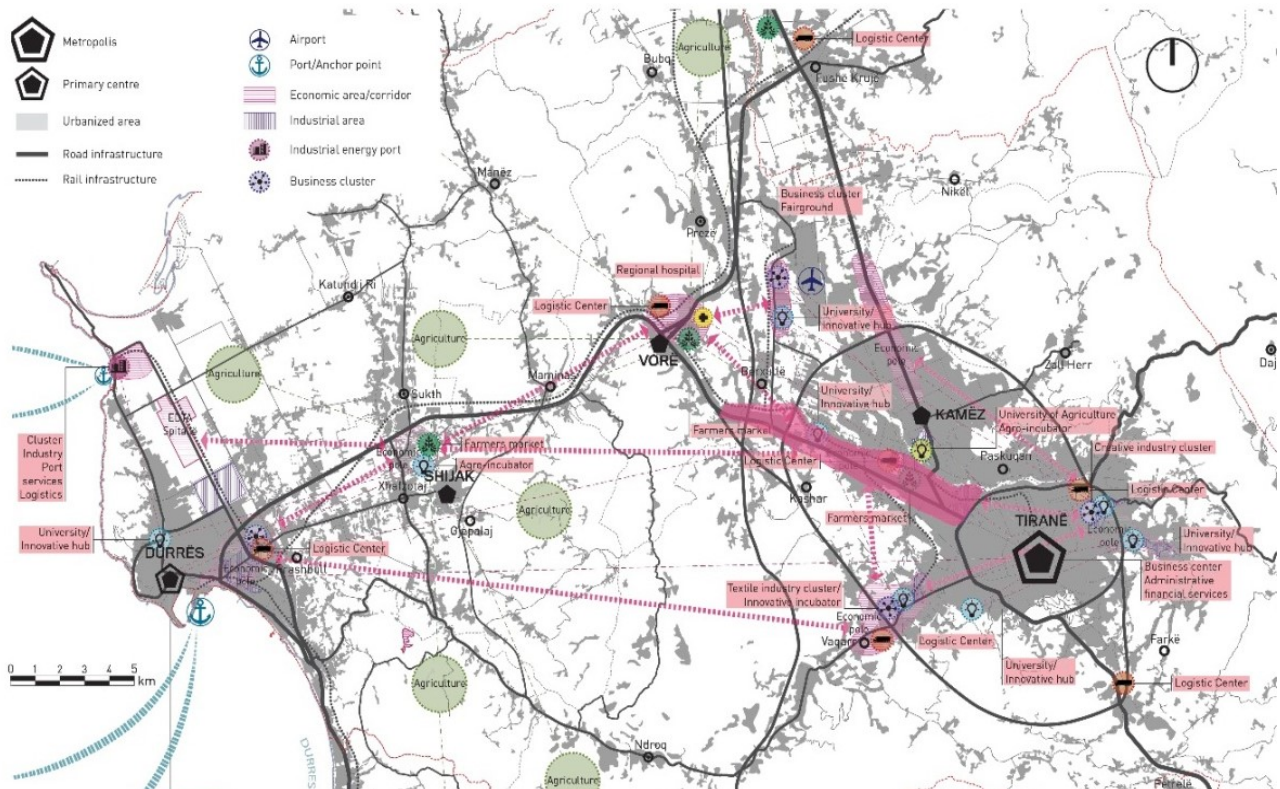


Fig. 6 Cross sectorial integrated plan for Tirana-Duresi zone drafted by AKPT and MZHU [20].

Fig. 6 represents a development model of industrial zone between Tirana-Kashar, considered as a priority

area for the industrial development of Tirana. Anyhow, it emphasizes the phenomenon of generation of the

secondary linear belt (from the AT (airport turn) up to Vora), as a reality and actuality that must be studied immediately.

5. Detailed Analysis of Development Situation in Kamza Junction-Kashar Turn, Industrial Zone (2004-2020) [8]

The linear industrial zone, located in the north-west of Tirana city, on both sides of the Tirana-Durrës highway KJ-KT, represents the most important area of high concentration of industrial and construction enterprises, with a significant economic contribution not only for Tirana but also for the region.

5.1 Land Use Situation (2004 and 2020)

Between 1990-2004, the industrial area under study with continuous development, has been extended on both sides of the highway from Durres to Tirana, occupying a territory of 740 ha, with dimensions of 6.7 km length and 0.7-2 km width. The area is bordered on the north-east side by the railway Tirana-Durres and the hills of Domje, and in the western part by the fields and hills of Kashar. This placement creates the idea of a valley, with its narrowing's and expansions along these 6 km longlines, by configuring a linear space with an open, natural, landscape horizon on both sides.

The targeted territory is mostly flat with an inclination level of up to 7%, while that of the surrounding areas along it of 10%-35%. This

characteristic makes the area very attractive for the urban residential developments of good quality and very favorable landscape values. All the conflicts and contradictions identified since the beginning of 90s on this linear industrial zone have been reflected by identifying the relationship between the existing housing structures on the suburban areas (see Fig. 7) [8]. From the preliminary conclusions obtained by this analysis, we have the two following grouped lists of conditional advantages and disadvantages regarding land use.

Conditional Advantages:

- (1) The immediate possibility of access through in the side plots along the road stimulates the occupation of first lines territories.
- (2) The return of public lands (along the road) to the owners, as well as the land sale by applying underestimated prices from the private owners encourages the immediate linear development of these territories.
- (3) The closed distances 3-6 km from the city center, and the surrounding residential areas stimulated a rapid increasing of employment rates.
- (4) The favorable technical characteristics of territory are considered its structure and inclination level, irrigation and draining facilities nearby etc.
- (5) No any evidence or presence of existing hot spot and hazardous substances with impact on environment.
- (6) Attractive and qualitative landscapes accompanied by hills backgrounds.

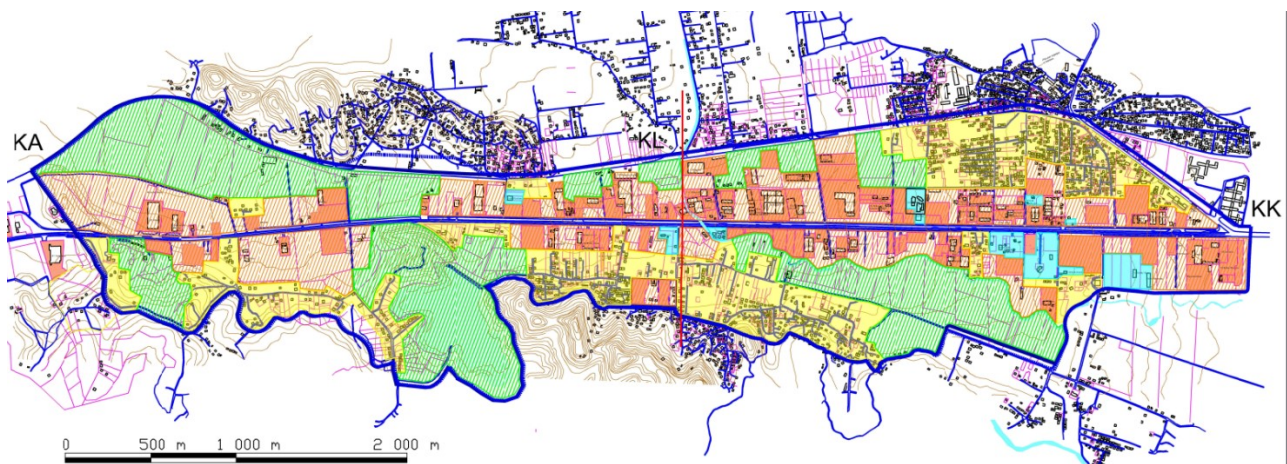


Fig. 7 Industrial territory placement and parcels occupation by enterprises until 2004 [8].

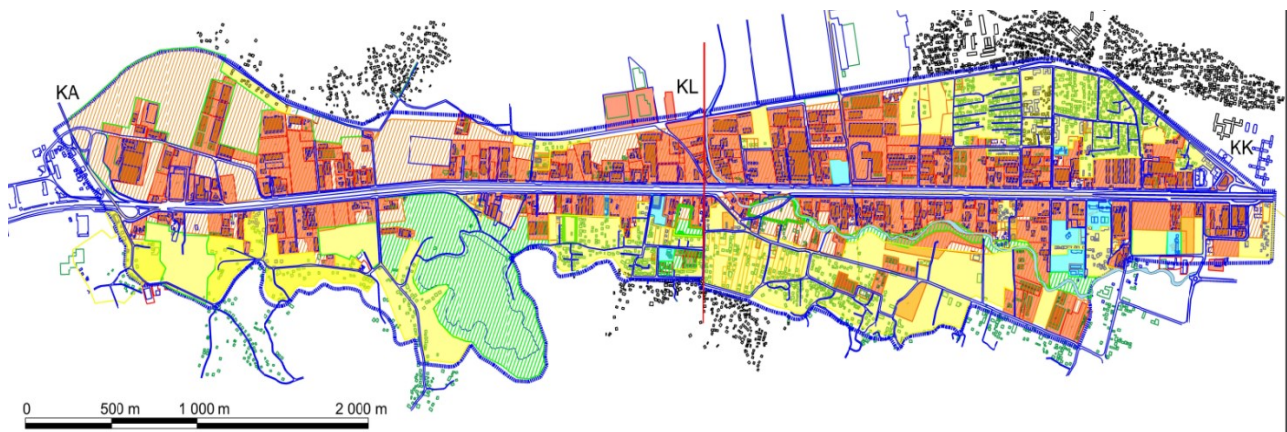


Fig. 8 Comparative overview between industrial territory and occupied parcels by enterprises up to 2020 (prepared by the author).

Conditional Disadvantages:

- (1) Linear structure is difficult to be adapted with the radial concentric structure.
- (2) Narrow, linear, not-rational development of lots is an obstacle for the transversal ranking of enterprises.
- (3) Occupation of territorial belts on both sides of the road complicates the cross, transversal-communication.
- (4) The location of the railway in parallel with the industrial zone represents a rigid boundary for the connection of it with the residential areas.
- (5) The necessity of important overpasses across the roads and railways requires large structures.
- (6) The depth of 1-7 km of the industrial belt, does not allow the zoning (sanitary-hygienic) of different industries in the transversal direction, but the linear zoning according to the length orientation prevails.

Despite the rapid developments since the beginning of 1990s in the city of Tirana, and the demographic expansion on the north and northwest areas, related with population growth from migration, the existing urban spatial development plans of the city were not able to manage the integration of this area as part of the city, jointly with the suburban areas. Moreover, the lack of development plans has negatively affected the co-existence of different industrial areas with residential territories, which in most cases turned them to an informal character

5.2 Contribution of Industrial Zone Development Plan (KJ-KT, 2006) [8]

Based on the preliminary conclusions of the PADCO master plan presented in 2006, and by an initiative taken from the Urbanization Unit of Tirana District, the first tentative was taken aiming the analysis, studying of urban aspects, zoning functionality and planning rules of the industrial zone in the northwest part of Tirana.

This study was conducted by ADC Studio Design in 2005-2006 and served as a regulatory and concrete encouragement for a possible planning and effective management of this area [8]. The crucial problem concerning the finalization of this project was the classification of industry made based on the principles of grouping and zoning, which has not been guided by the respective manuals and national defined standards. According to the industrial zoning principles, a preliminary orientation guide was considered the Planning Advisory Service Industrial Zoning Standards, American Society of Planning Officials, Information Report No. 78, Sept. 1955. It gives the principles and zoning standards: "Functional zoning could be described by listing the limit measures of noise, smoke, wind, vibration, brightness, etc., which would be allowed in terms of industrial use in some special and specific districts, where no listed names should be mentioned." [21, 22].

5.2.1 Functional Zoning

Based on the information provided by the report [8], light industry enterprises are included in the industry zoning and their occupation planned area goes from 70-150 m²/worker.

The principle of functional zoning takes into account the zoning of other elements outside the industry such as housing, trade, transport, services and recreation areas (see Fig. 8). Based on the analysis and description of the formative factors (see points 2 and 3 of the article), the planning and functional zoning scheme of the total industrial zone of 740 ha was developed, where the functional zoning, part of 2006 development plan, concludes with a surface of industrial zone of 295 ha (39.9%), of the residential sub-zone with an area of 226 ha (30.6%), of the main roads, secondary and parking of 132 ha (17.8%), as well as of natural and agricultural territories of 70 ha (9.5%). Under the total lack of social territories conditions, needed for social and recreational purposes, a minimum of 16 ha (2.2%) has been

planned to be dedicated as useful territory (see Figs. 9 and 11).

In Fig. 9, a detailed solution of functional zoning is given, where each of the parcels contains its own indicators of functional type, surface size and the degree of volumetric density and territory occupation.

5.2.2 Ecological Requirements

In territories similar to ours, some localization/detections operation should be executed, based on ecological requirements, such as the level of noise, smoke, wind, vibrations, etc., in the industrial parcels. The presence of two up to three belt parcels, in parallel to the road, allows a functional zoning in terms of depth, through which a distinction among the enterprises with different degrees of vulnerability is achieved. It should be said that according to the Study Report, in this territory only the industrial enterprises of category 5, 4 and 3 are allowed to be detected, according to the degree of pollution, damage risk and do not represent a potential risk to the health of residents, flora, fauna, etc. [8].

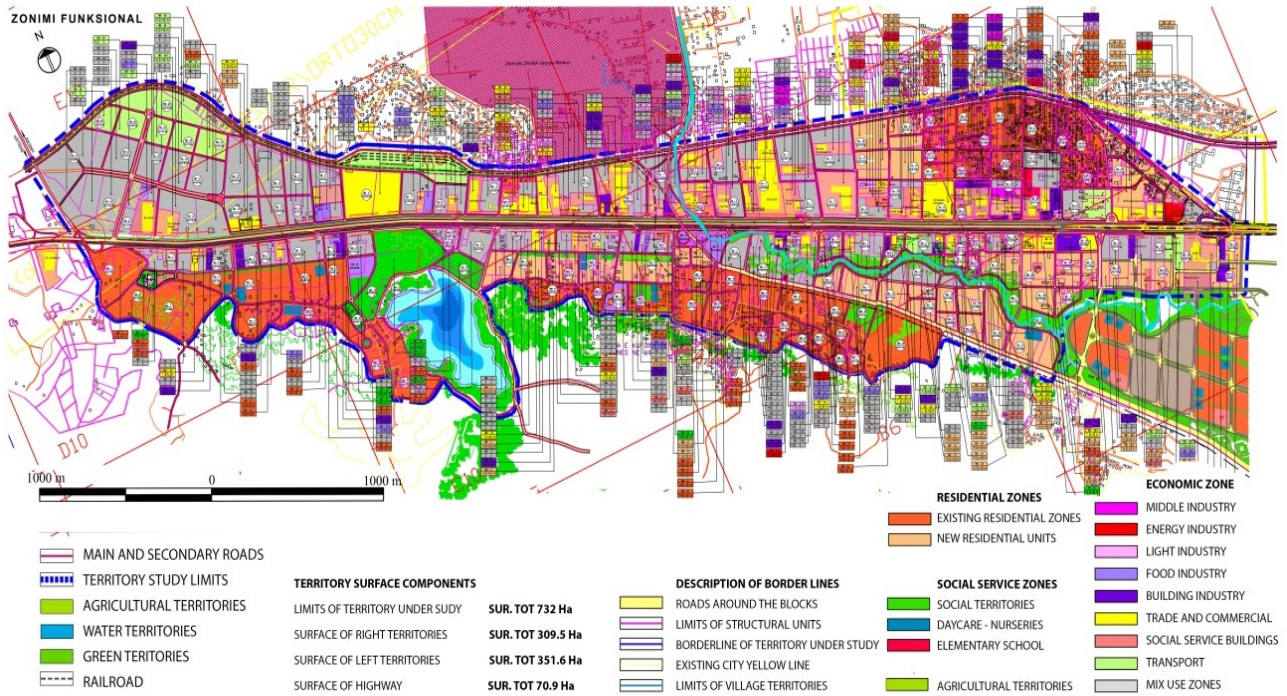


Fig. 9 North-western industrial zone, functional zoning 2006. ADC Design Studio [8].



Fig. 10 North-west industrial zone, Road planning, Tirana 2006. ADC Design Studio [8].

Table 1 Classification and distribution of the territory in ha, in accordance with the size of the parcels of industrial enterprises (Classification and calculations are made by the authors).

	Until 2004			Until 2020		
	No. enterprise	Total surface (m ²)	Total surface (%)	No. enterprises	Total surface (m ²)	Total surface (%)
Parcel (very small): 1,000-4,000 m ²	15	45,790	1.9%	101	260,612	7.8%
Parcel (small): 4,000-7,000 m ²	33	178,676	7.5%	103	534,535	16.0%
Parcel (medium): 7,000-12,000 m ²	29	264,825	11.1%	58	518,205	15.5%
Parcel (large): 12,000-20,000 m ²	16	245,750	10.3%	33	511,964	15.3%
Parcel (x large): 12,000-20,000 m ²	13	409,195	17.2%	15	494,907	14.8%
Parcel (free, not occupied)		1,233,764	51.9%		1,027,777	30.7%
Total	106	2,378,000		310	3,348,000	

In this study a vegetation system is planned, where each industrial block has green surfaces (up to 25% of the area), which presumes the surrounding perimeter greenery in the width of 5-6.5 m around the buildings. There are also green belts of a 12 m width along the highway, as well as the accompanying green belts of the railway with a width of 8 m.

5.2.3 Road System and Integration with the Surrounding Area

The plan pays special attention to the definition of the road network, transversal road profiles, especially to the scheme of the main traffic junctions. Transversal obstacles are eliminated through these overpasses, junctions, parallel secondary roads and the railway lines (see Fig. 10) [8]. It is emphasized that the effective use of these nodes requires a special feasibility for defining the optimization scheme of transversal movements in the area.

5.2.4 Planning Standards (Compactness and Land Use Efficiency of Industrial Parcels)

By allowing the restricted application of activities based on functional zoning, the principles of compactness and efficiency of land use should also be respected in the whole territory of 740 acre that has been studied.

A controversial indicator of standard level was the predicted maximum number of workers in the whole industrial zone. This indicator has been taken at the limits of 20,000 workers and by density limits 65-67 workers per hectare [8]. Regarding the housing block, the density indicator has been taken at lower levels, responding to the morphology of individual housing in the range of 80-100 inhabitants per acre. The planned industrial blocks should have the construction line 4.5-6.5 m from the border lot, in relation to the construction intensity $I = 3.6-12.2 \text{ m}^3/\text{m}^2$, and the

occupancy coefficient of the plot by constructions $p = 0.45-0.75$ [8].

Functional zoning is achieved through utilization and application of planning standard and technical designing ordinance. The detailed planning aspects are missing at the existing national and local legislation. In such conditions, the indicator standards applied are based on international experience [22, 26]. In order to achieve the compactness of industrial zoning, blocks of different sizes (surface) are planned, blocks of medium surface 0.7-1.2 ha and blocks of large surface 1.2-2 ha (see Table 1).

The spatial planning of the linear industrial zone of Tirana is performed according to lotization system, with a combined use of small, medium, large, and very large modules of lots, with dimensions from 80 to 150 m per lot. The module of 10,000-12,000 m² can be fully divided and multiplied according to the linear belts along the road.

A quick overview of parcels typology is presented in Table 1, which clearly noted that “very small” and “small” parcels (104 enterprises) occupy an area of 23.8%, while “medium”, “large” and “very large”

parcels (106 enterprises) occupy an area of 45.9%.

According to 2006 planning, within the industrial zone a reserve territory unoccupied of 30.3% is foreseen, dedicated to future industrial developments.

6. Reevaluation and Reconstruction of Industrial Zone (Conclusions and Recommendations)

6.1 Spatial Development Needs for Functional Zoning Integration with the City

Despite the planning processes and efforts for the management of industrial zone during 2006-2020 period, there are also numerous developments and changes of the industrial and business parcels, in linearity or in depth of the industrial area. Parcels occupancy figures of these areas vary from 2006-2020 (see Fig. 11).

The above situation analysis and the plans achieved so far provide a comparative overview of the ongoing dynamics of the 5 zones respectively for: 2002; 2006; 2020, where a continuous increasing of territories is clearly noted occupied for industrial and business purposes with a relevant dominance of commercial territories.

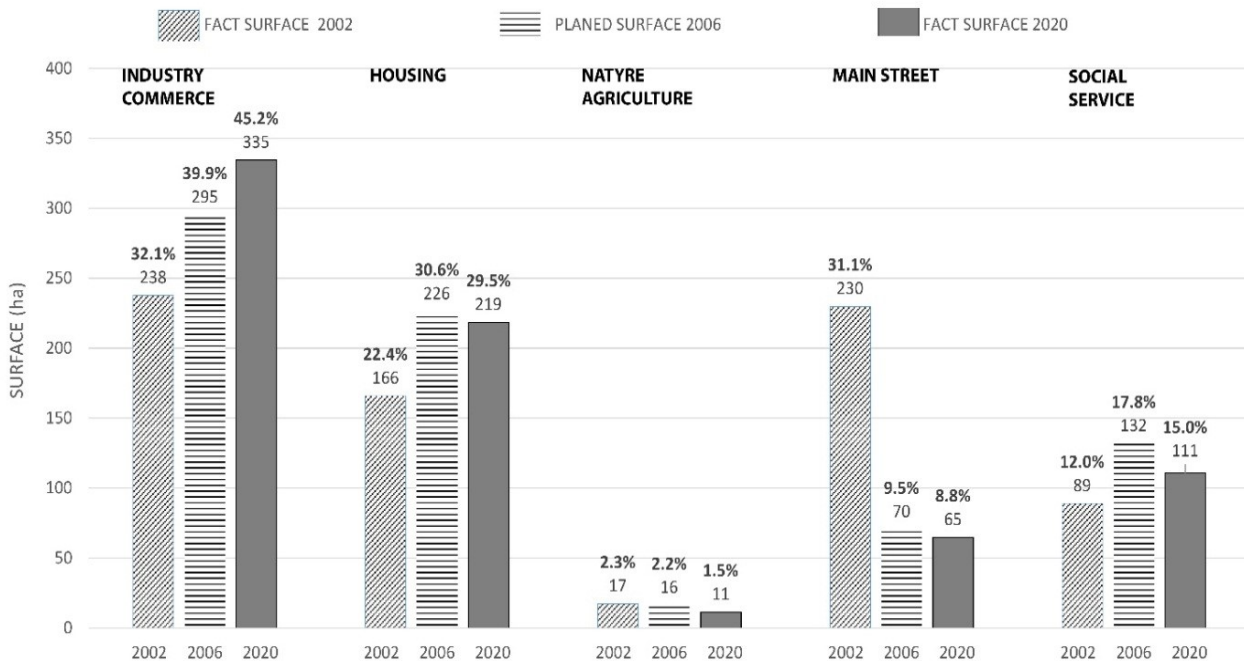


Fig. 11 Comparative analysis of territories (functional zoning) for 2002, 2006 and 2020 (in acre).

In the meantime, the residential territories have been reduced because of the urban planning and regulatory initiatives undertaken, by taking into account also the housing morphology, mainly those of low density.

The current trends and growth rates clearly demonstrate the need for a better integration of this area in line with the development perspective of "Greater Tirana". For this a better framing of the development ideas and technical solution for the improvement of mobility connections such as road network, railway and urban transportation, as well as the industrial zone with the surrounding villages, is needed. Until now, all the implemented infrastructural improvements failed in solving and managing this problem. The planning process based on the integration approach must consider a minimum perspective of 30 years. The placement of a transversal connecting axis such as Kashar, Industrial Zone, Laknas and Kamza is the starting point of an integrated study.

6.2 Conclusions on the Reconstruction Strategic Plan of the Existing Area

The economic and technological modernization of the First Zone (KK-KL) and Second Zone (KL-KA) means the involvement of a different complex opinion at the conclusions, by mixing the industry with other operative activities of the first and second zone differently.

First zone - From KT to LT (Laknas Turn), requires a mixed development of industry with business, with an industrial area limited by enterprises with tendencies to reconstruction and technological modernization [6]. Manufacturing production technologies are expected to be eliminated and they only will serve for the expansion of other industries. The zone has to be distinguished, for its content and development of large deposits, commercial multi-store businesses, administrative, research and university businesses [6].

Second zone - From LT to AT (3.66 km), as a zone with larger spaces, very suitable for the development

of light industries, food, engineering, production and manufacturing (construction sector), this area can be developed and transformed into a modern industrial zone, with new or reorganized enterprises.

The presence of large, unused areas, with the proximity (in the future) to the railway station, is the right presupposes for a positive development perspective of light and medium industries in this zone, by representing an important factor when taking into consideration the New Regulatory Plan.

The revaluation of industrial territories/zones should be based on new experiences, based on the sustainable development principles when undertaking industrial parks planning processes, as a very advanced methodology used for the industrial settlements location near the city [26].

6.3 Conclusions on Social Service Systems

The option suggested proposal, for the multiplication and distribution of many small centers along the linear zone is not comparable with the concentration for 2 big social centers at a distance of 2-3.5 km from each other that can potentially be more developed and multi-functional.

The central proposal for a node with a concept of a multi-functional activity, as center of large extension, has to be placed in the LT area, at the point which provides the transversal axes for transportation. This kind of center should be considered not only as a service center for the industrial zone and its 20,000 workers, but also as an important hub of the city designated for the recreational and cultural activities, considering the favorable distances from the city center 6-7 km.

The consideration of one or two polycentric centers will change the dynamics of linear and functions of the area.

It must be noted that today there is a real opportunity for the revision of Regulatory Plan of Greater Tirana, by reflecting the new perspective development characteristics expected to be occurred.

The first localized center can probably have an extension of 7.5 ha, placed between Polis University and Coca-Cola. It is expected to be a poly functional center of commercial, administrative, cultural, education and recreational typology, as well as universities.

On the other hand, the second proposed center will be placed in the middle of the industrial zone by occupying 10-11 ha, right at the point where the intermodal railway station of Kashar will be settled. This center will mainly include facilities of administrative and services typology for the pedestrian and good transiting purposes.

6.4 Conclusions/Finding regarding the Strategic Development and Management Systems

The strategic development plan of an important economic industrial zone, placed near the city and the existing transport lines and future planned intersections, would require complex feasibility studies, as well as an urban planning process based on complex studies by integrating all needed components such as economic, technological, spatial and environmental.

This initiative has to be taken by involving all the responsible institutions who has to support, contribute and coordinate the process at all levels: central and local authorities, governmental institutions, dealing with planning and urbanization issues, as well as a future business consortium, that do not exist at the moment.

References

- [1] Collins, R. 1960. "Linear Planning throughout the World." *Journal Ekiscs* 9 (54): 242.
- [2] Gras, P., and Garnier, T. 2013. *Une Cite Industrielle, Project Urbanistique 1899-1917*. Paris: Edition de Patrimoine, CMN, p. 3. (in French)
- [3] Pellegrino, P. 1999. *Infrastructures et Modeles Urbanistiques. Espaces et Societes*. Paris: Harmattan Publisher, p. 12. (in French)
- [4] Doxiadis, C. A. 1967. "On Linear Cities." *Town Planning Review* 38 (1): 35-42.
- [5] Lynch, K. 1984. "The Linear City." In *Good City Form*. Cambridge: MIT Press, pp. 376-77.
- [6] Hatuka, T. 2017. "Industrial Urbanism: Typologies, Concepts and Prospects." *Built Environment* 43 (1): 10-24.
- [7] Hatuka, T., and Ben-Joseph, E. 2022. *New Industrial Urbanism, Designing Places for Production*. New York: Routledge.
- [8] Lufi, A., and Faja, E. 2006. *Urban Planning Study for Industrial Zone in West of Tirana City, along Durres Road, Relacion in District Council Tirana*.
- [9] Tirana Municipality. 2012. "General Local Planning of Tirana." pp. 30-7, 62-7, 72, 89, 93.
- [10] Lufi, A. "Conscience of the Reality." Tirana and Balcanic architecture. Review AND nr. 11 2018 ISSN 17239990 DNA Editrice, Florence.
- [11] Isola, A., and Bazzanella, L. 2004. *Nuovi Limitti della Citta, U.Cao, Esperienze Forme Insediative, Ambiente e Infrastrutture*. (in Italian)
- [12] Tirana Infrastructure Modernization Project JICA. 2011-2012. *Project for Tirana Thematic Urban Planning*.
- [13] MPD. 2017. *Documents of Politics for Planning and Development of Territories of Albania Ministry of Urban and Tourism Development*.
- [14] Law Nr. 10119. 2009. *For Territory Planning in Albania*.
- [15] Faja, E. 2008. *Who Is Leading Albanian Town Planning? The Project for the Development of the Industrial Zone along Tirana—Durrsi Highway*. Detroit: UFO University Press, pp. 30-6.
- [16] Municipality of Tiran-Urba Plan. 2008. *Urban Regulatory Plan Tirana*. Final Report, pp. 23-31.
- [17] PADCO, Valu Add Management Services, Mix Tecnic. 2002. *Strategic Plan for Greater Tirana, Urban Land Management Project* (Vol. 1). Main Report, pp. 52-7, 63-7.
- [18] Municipality of Tirana Stefano Boeri Architetti, UNLAB, IND. 2016. *Tirana TR030, General Local Plan*. General Report.
- [19] Mills, L., and Happold, B. 2007. *Sustainable & Integrated Development of Tirana—Durres Region*.
- [20] MZHU and AKPT, Pegi. 2020. *Integrated Intersectoral Plan for Tirana-Durres Zone*. Albania 2030.
- [21] Novick, I. 2021. *What Is Industrial Zoning? Light vs. Heavy Industrial Zones*. Leverage.
- [22] American Society of Planning. 1955. *Industrial Zoning Standards*. Chicago, Illinois: American Society of Planning Officials Information Report No. 78.
- [23] Gjonca, A., Elezi, P., and Sado, L. Inequalities in Greater Tirana. INSTAT Report 2016 pg.5.
- [24] Law Nr. 107. 2014. *Planning and Development of Territory in Albania*
- [25] Law Nr. 28/2017. *Some changes and additions to Law 107/2014*.
- [26] GIZ. 2017. *Handbook on Planning of Sustainable Industrial Parks German Cooperation 2017*.