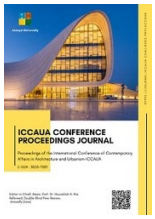


ICCAUA Proceedings Journal
Proceedings of the international conference of contemporary affairs in architecture and urbanism-ICCAUA

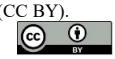
Volume 8 (December 2025), Pages 539–548
Journal homepage: https://journal.iccaua.com/

DOI: https://doi.org/10.38027/ICCAUA2025EN0228

Environmental Impacts from the Construction Sector, as a Consequence of the Planning that Has Been Subjected to the Territory of the Municipality of Tirana, Albania

* [1] **Kleant Semema**, [2] Prof. Dr. **Neritan Shkodrani** , [3] **Enxhi Çelaj**
[1 & 3] Department of Environmental Engineering, Faculty of Civil Engineering, Polytechnic University of Tirana, Albania
[2] Department of Building Constructions and Transport Infrastructure, Faculty of Civil Engineering, Polytechnic University of Tirana, Albania
[1] E-mail: kleantsemema@hotmail.com , [2] E-mail: neritans@yahoo.com , [3] E-mail: enxhicelaj@yahoo.com

Received: 14 February 2025
Revised: 18 May 2025
Accepted: 18 June 2025
Available online: 5 July 2025



This article has been selected and peer-reviewed for publication in this journal as part of the 8th International Conference of Contemporary Affairs in Architecture and Urbanism, held on 8–9 May 2025 in Alanya, Türkiye.

A b s t r a c t

This study aims to assess the impacts on the environment from the construction sector in the territory of the municipality of Tirana, Albania, as a consequence of planning that has been subjected to the territory, accompanied by negative interference from temporary or continuous human actions. The results obtained from this study are based on the method of qualitative and quantitative analysis. For the period 2017-2023 according to the Institute of Statistics of Albania, 2464 construction permits were approved in Tirana region, while for the period 2015-2023 according to the National Environmental Agency of Albania, 2015 projects with an impact on the environment were approved in Tirana region, of which 1491 only in Tirana municipality, mainly in the construction sector. The Municipality of Tirana, as a result of territorial planning at the national level, ranks with the highest number of impacts on the environment, as a result of the construction sector.

K e y w o r d s : sector; construction; environment; quality; impact.

1. Introduction

1.1 Background and Context

Temporary or continuous human actions that can affect the carrying capacity of the environment or its biodiversity, or that have harmful impacts on the environment, are defined as negative interventions in the environment. In the context of negative interventions in the environment, we mention here the implementation of construction works. These actions are associated with the Gross Domestic Product (GDP) [1] according to the classification of economic activities, it turns out that the construction sector ranks among the 3 (three) most important sectors of the economy in the territory of the Republic of Albania.

The protection of the environment in its entirety and ensuring the conditions for the sustainable development of the country is a legal requirement of the Constitution of the Republic of Albania [2], the specific law on environmental protection [3], the specific law on environmental impact assessment [4] and the specific law on territorial planning and development [5].

Ensuring the conditions for sustainable economic, environmental, and social development is the duty of public authorities, and this is achieved through the drafting, approval, review, amendment, modification, and implementation of strategies, plans, programs, and projects. The main challenge for public authorities in the field of environmental protection is to ensure, through their policies, the use of natural resources in such a way that current needs are met while preserving the environment, without compromising the ability of future generations to meet their own needs.

Among other things, public authorities, during the drafting and approval of territorial planning documents, must base their work on the principle of an integrated approach “prevention and/or reduction of environmental risk in its entirety”. They must specifically consider the vulnerability of the environment, the connection between the balance and values of the natural landscape, the relationship between renewable and non-renewable natural resources, cultural heritage and material assets, the entirety of their mutual interactions, as well as the interaction between existing and planned projects.

To protect the components of the environment, improve the quality of life, and ensure the conditions for the sustainable development of the country, it is necessary to have an integrated approach from the early stages, starting with planning, followed by other phases of pollution prevention and control.

1.2 Problem Statement and Research Gap

The ever-increasing demands for products, primarily from the construction sector [6] over the past decades, as a result of the planning [7] to which the territory of Albania has been subjected, have been accompanied by increased pollution and environmental threats, highlighting environmental issues as a consequence of the interaction between existing projects, new projects, and planned ones.

According to data published by INSTAT [8], from 2017 to 2023, a total of 8,436 construction permits for residential and non-residential buildings were approved across the entire territory of the Republic of Albania, covering a total area of 12,936,272 m^2. The Tirana region holds the highest number of approved permits, with 2,464 construction permits for residential and non-residential buildings, covering an area of 8,916,946 m^2.

Whereas, according to the data published by NEA [9], from 2015 to 2023, it is evident that at the national level, for projects impacting the environment, 437 Environmental Declarations [10] and 6,050 Preliminary EIA (Environmental Impact Assessment) Decisions [11], have been approved. The Tirana region holds the highest number of Preliminary EIA Decisions, with 2,015 decisions, of which 1,491 were approved only in the municipality of Tirana, where the construction sector (residential and non-residential buildings) dominates.

Every natural or legal person, according to the legal provisions in force for territorial development and planning, has the right to develop the territory of a given environment. Territorial development is carried out at the national and local levels, which is the process of altering the territory through new constructions or modifications to existing constructions, divided into zones and structural units of the territory.

In the assessment of the territory of the Republic of Albania impacted by construction works, it results that the territory of the municipality of Tirana is the area with the highest environmental impacts, as a result of human activities concentrated in the construction sector (residential and non-residential buildings).

1.3 Objectives and Hypotheses

The purpose of this study is to assess the environmental impacts of the construction sector, as a result of the planning to which the territory of the municipality of Tirana in Albania has been subjected, accompanied by negative interventions from temporary or continuous human actions.

This study contributes to the drafting of national and local territorial strategies and plans, which will be approved, reviewed, amended, or modified in the future within the territory of the municipality of Tirana, by setting clear objectives for managing environmental impacts from the construction sector.

The objectives of this study are:

- To analyze the progress of the construction sector in Albania's Gross Domestic Product (GDP).
- To analyze the progress of the approval of construction permits for residential and non-residential buildings in the Tirana region.
- To analyze the progress of the approval of EIA (Environmental Impact Assessment) decisions for residential and non-residential buildings in the Tirana region.
- To analyze the progress of environmental impacts from the construction sector in the territory of the municipality of Tirana.
- To analyze the environmental impacts of the construction sector, in reference to the planning to which the territory of the municipality of Tirana has been subjected.

The methodology used and the results achieved in this material in the field of research on Sustainability and Urban Design, specifically in the subfield of New Urbanism, are based on the method of qualitative and quantitative analysis. In line with its title, purpose, and objectives, this study is focused on four (4) main issues addressed as research questions, as follows:

1. What is the contribution of the construction sector to the Gross Domestic Product (GDP) in the territory of Albania for the period 2018-2023?
2. What is the number of construction permits and the total area of approved construction space for the period 2017–2023?
3. What is the progress of environmental impact assessments from construction sector projects for residential and non-residential buildings in the Tirana region during the period 2015–2023?
4. What is the progress of environmental impacts from construction sector projects for residential and non-residential buildings in the municipality of Tirana during the period 2015–2023?

2. Materials and Methods

The methodology used for the preparation of this study and the results achieved are based on contemporary methods, specifically qualitative and quantitative analysis.

The qualitative method used enables the collected and processed information to be systematically reflected in the material and ranked according to the significance of its application, providing the reader with accurate, rich, accessible, and easily understandable information, with well-defined references. Meanwhile, the quantitative method used allows the collected and processed information to be presented in the material in the form of statistics.

2.1 Information Collection

The information on which this study is based was obtained from the Institute of Statistics of the Republic of Albania (INSTAT) [12] and from the National Environmental Agency [13]. Initially, information was collected on the economic activities that contribute to the Gross Domestic Product (GDP) of the Albanian state according to the production method [14], where 19 (nineteen) economic activities have been analyzed and the period taken for analysis is from 01.01.2018, to 31.12.2023*. Subsequently, to evaluate the distribution of the construction sector [15] at both the territorial and regional levels, information was gathered on the number of approved constructions permits for residential and non-residential buildings, as well as the area in m2 occupied by these buildings, with the analysis period spanning from 01.01.2017, to 31.12.2023*. As a result of the lack of information at the municipal level, aimed at identifying the municipality with the highest number of environmental impacts from the construction sector, the information gathering has focused on the data published by the National Environmental Agency (NEA), where the data of the approved decisions [16] for projects that include an Environmental Declaration and a Preliminary EIA Decision have been evaluated, with the analysis period spanning from 01.01.2015 to 31.12.2023.

2.2 Data Analysis

For the processing and analysis of the data, a model was built in Excel into which all the gathered information was entered. The data processing was carried out by verifying the data for each of the themes that are the objective of this study, which were then entered into the Excel database. The construction sector was compared with 19 (nineteen) economic activities, and for each analyzed year, the contribution of this sector was compared both in percentages and in million lek against the total sectors contributing to the Gross Domestic Product (GDP). Subsequently, for each analyzed year, data on the total number of constructions permits and the area occupied by these buildings was generated for the entire territory of Albania and for each county separately. Would you like more detailed insights into how such data models can be optimized in Excel, or perhaps an explanation of how these comparisons illuminate economic trends? With regard to projects with environmental impact, for each year included in the analysis, their distribution was assessed at both the national level and the county level. Subsequently, the municipalities within Tirana County were examined, and only the decisions pertaining to construction sector projects were identified. The analysis of the data obtained for the studied periods was conducted using the filter options provided by Excel. These data were analyzed using quantitative methods, from which graphs were generated to present the information in the form of statistics.

3. Results

3.1 The contribution of the construction sector to the Gross Domestic Product (GDP) in the territory of Albania for the period 2018-2023*

At the national level, according to the data published by INSTAT for the period 2018-2023*, among the 19 analyzed economic activities, the construction sector ranks among the three main sectors of Gross Domestic Product (GDP) production according to the economic activity classification.

In the following graphs (Fig. 1), the contribution of the construction sector to GDP is presented in percentage terms, while in the graph (Fig. 2) the contribution in million lek that the construction sector accounts for in GDP is shown for the analysis period 2018-2023*.

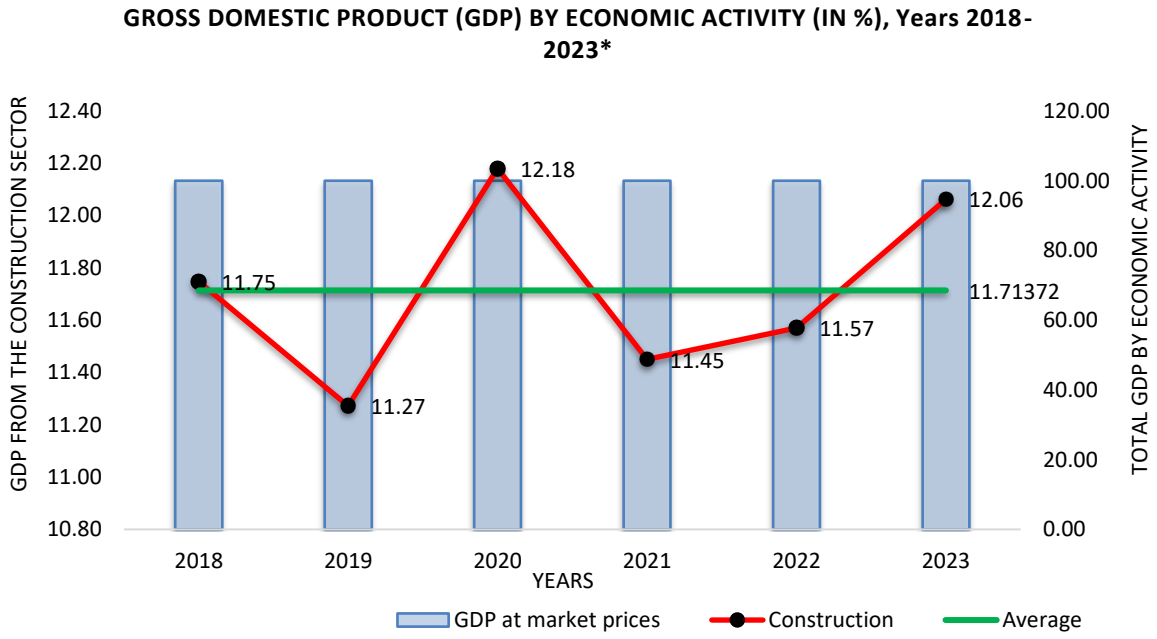


Figure 1. Gross Domestic Product (GDP) by economic activity (in %), Years 2018-2023* (2023* Semifinal data).

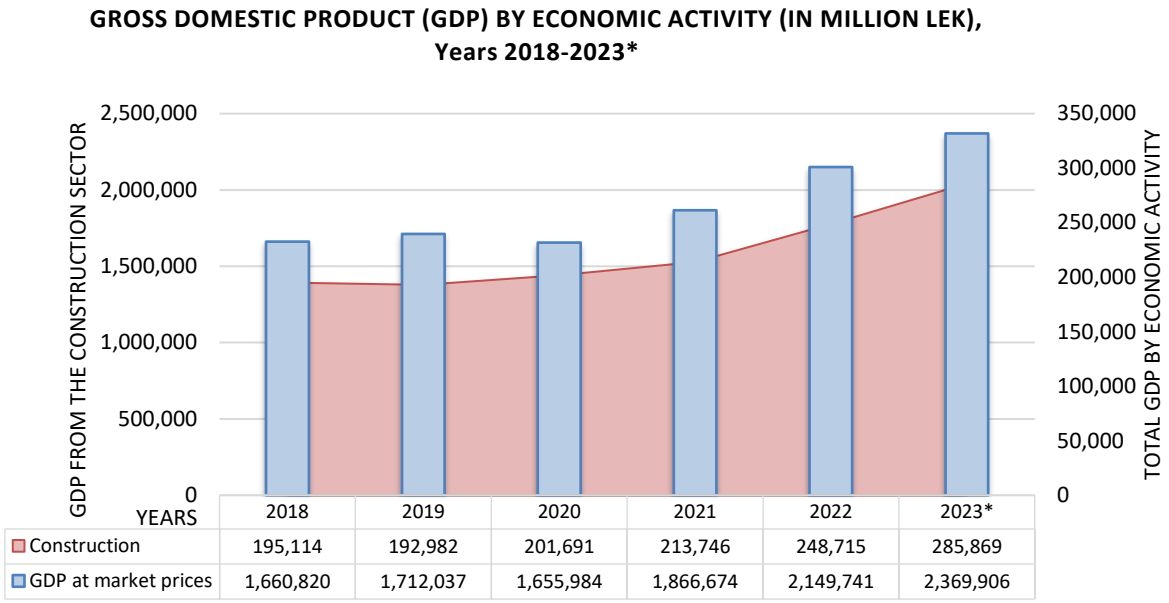


Figure 2. Gross Domestic Product (GDP) by economic activity (in million ALL), Years 2018-2023* (2023* Semifinal data).

The construction economic activity ranks after agriculture, forestry/fishing, and wholesale and retail trade, accounting for an average of 11.71% of GDP over the six years evaluated (2018-2023*), as shown in the following graph (Fig. 3).

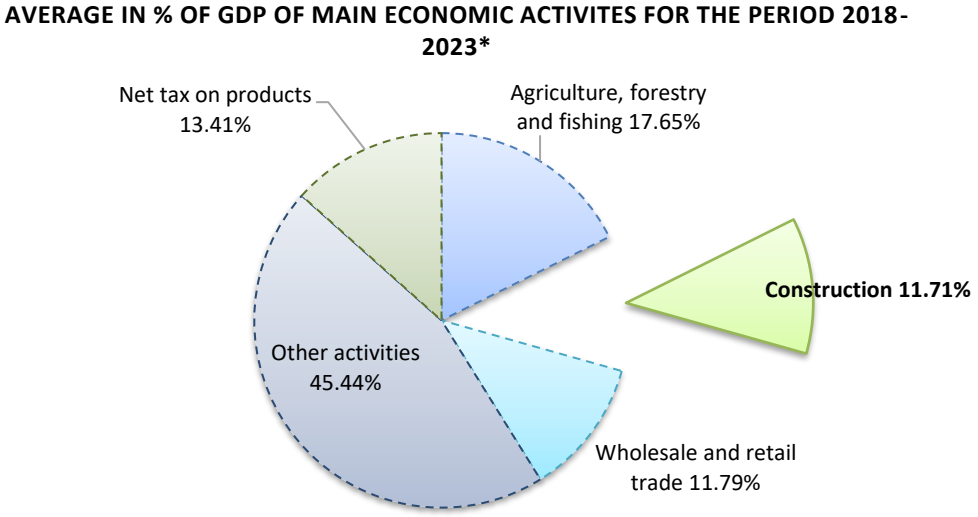


Figure 3. Average in % of GDP of main economic activites for the period 2018-2023* (2023* Semifinal data).

The analyzed data indicate that the construction sector has maintained stable progress in terms of the country's economic development in the production of goods. Although economic activities positively impact a country's economic development, they are also accompanied by permanent or temporary environmental impacts. Ranking the construction sector as one of the three key sectors of the economy suggests that its contribution to environmental impacts is also among the three primary sectors; this ranking is due to its significance rather than the magnitude of its impact.

3.2 The number of constructions permits and the total approved construction area for the period 2017–2023*

Based on the data analyzed by INSTAT presented in the following graph (Fig. 4), it appears that for the period from 2017 to 2023, a total of 8,436 construction permits (for both residential and non-residential buildings) were approved across the entire territory of the Republic of Albania, with a total construction area of 12,936,272 m².

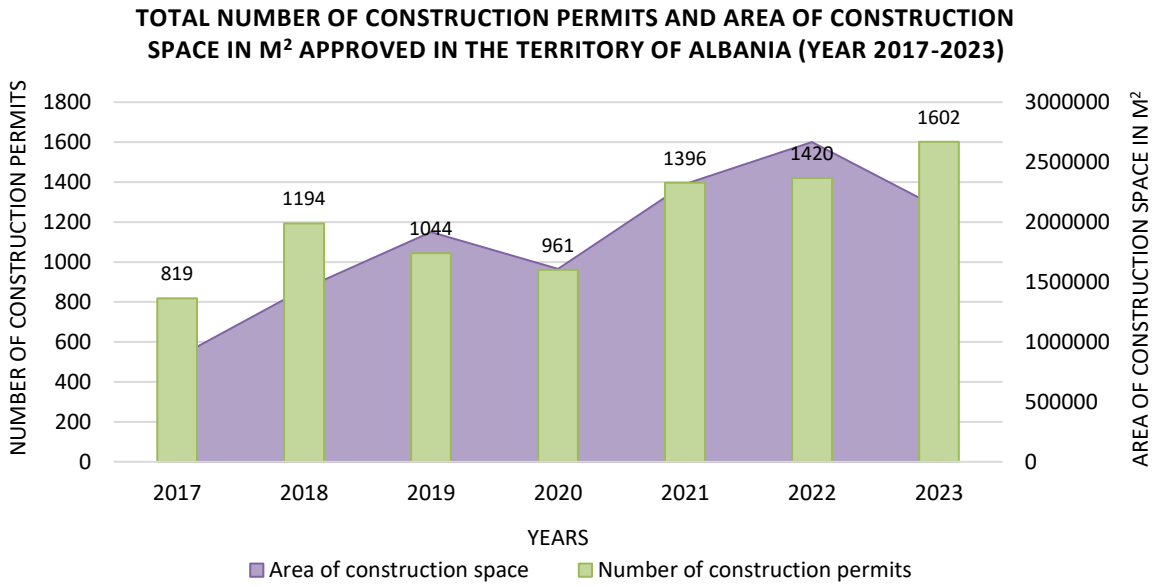


Figure 4. Total number of constructions permits and area of construction space in m^2 approved in the territory of Albania (year 2017-2023).

The data show that year after year we have an increasing number of constructions permits, with a slight decline in 2020—a year that coincides with the SARS-Cov-19 pandemic, which also affected the territory of Albania. The rising number of construction permits is also accompanied by an increase in the area occupied by these buildings, an area that is irreversible and directly impacts the environment of the territory where these buildings were approved.
For the same period (2017–2023), the construction permits and the total approved construction area for each of the counties of the Republic of Albania have been analyzed, as presented in the following figures (Fig. 5 and Fig. 6).

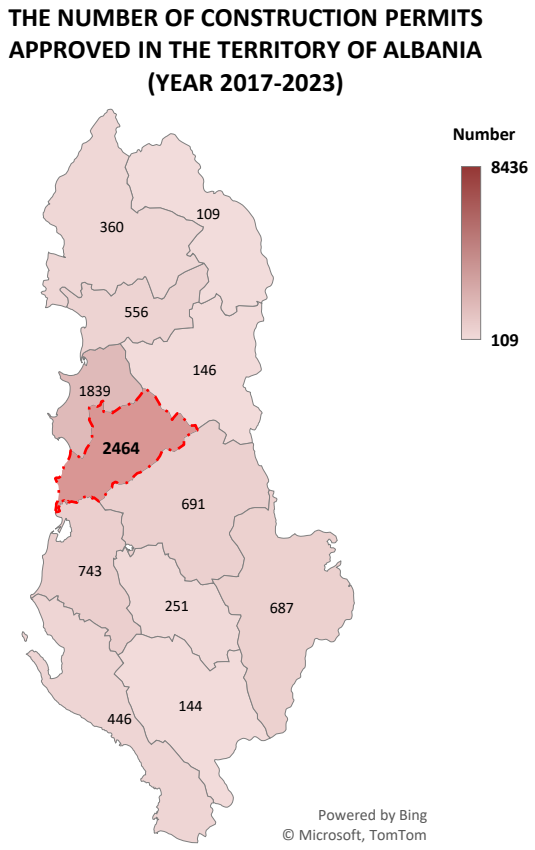


Figure 5. The number of construction permits approved in territory of Albania (year 2017-2023).

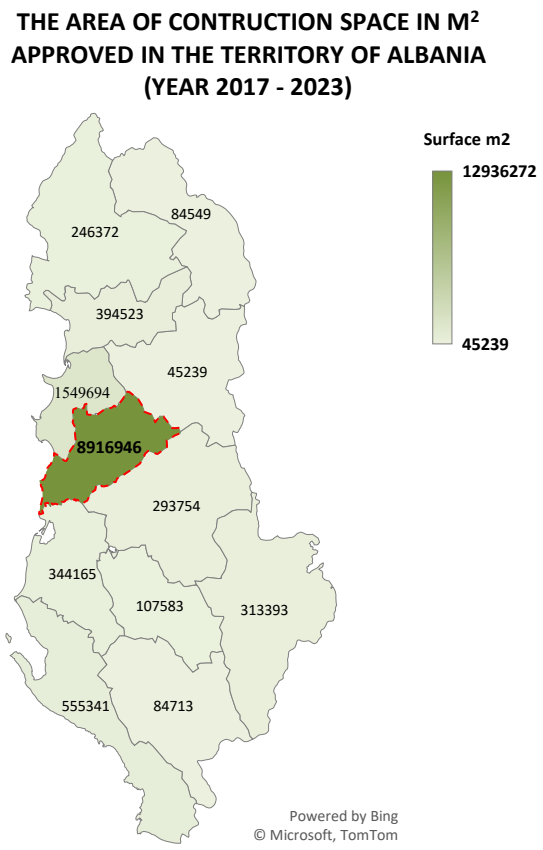


Figure 6. The area of construction space in m^2 approved i the territory of Albania (year 2017-2023).

Based on the analyzed data, at the county level, Tirana County registers the highest number of constructions permits and the largest total approved construction area, with a total of 2,464 construction permits (for both residential and non-residential buildings) (Fig. 5) and 8,916,946 m² of construction area (Fig. 6).

If we refer to the percentage data (%) presented in the following graph (Fig. 7), from 2017 to 2023, only in Tirana County have 29.21% of the construction permits been approved, compared to those at the national level, which account for 68.93% of the construction area. The high percentage of construction permits and the approved construction area indicate that the direct and long-term environmental impacts from the construction sector are predominantly concentrated in Tirana County.

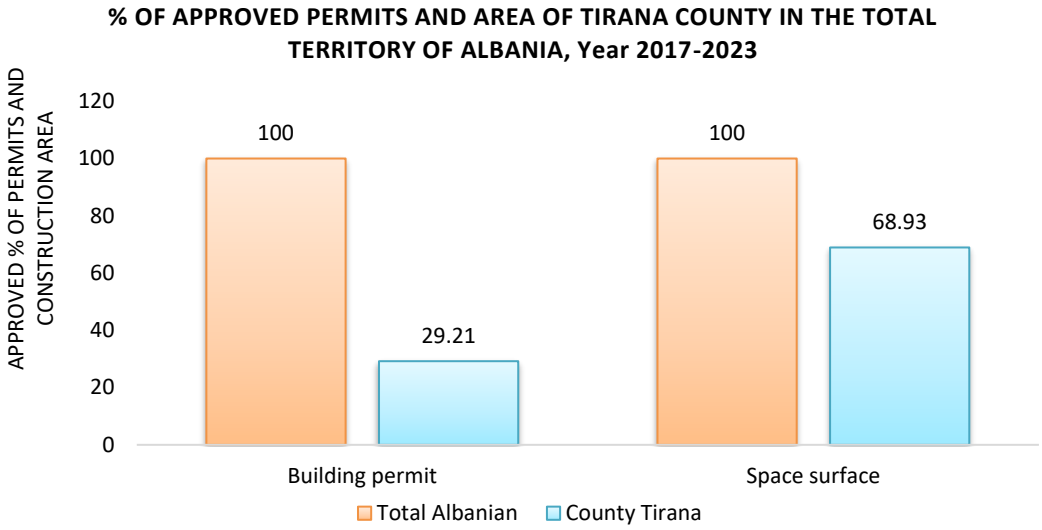


Figure 7. Percentage of approved permits and area of Tirana County in the total territory of Albania (year 2017-2023).

3.3 The progress of environmental impact assessments from construction sector projects for residential and non-residential buildings in Tirana County for the period 2015–2023

Considering that this is the county where the construction sector has developed the most, the approved decisions issued by the National Environmental Agency for projects with environmental impacts have been analyzed for the period from 2015 to 2023. Based on the data presented in the following figure (Fig. 8), the data for each year and each county in the Republic of Albania were examined, revealing that at the national level a total of 6,487 procedures for projects with environmental impacts have been approved—of which 437 are Environmental Declarations and 6,050 are Preliminary EIA Decisions.

Tirana County ranks first at the national level with 2,048 projects with environmental impacts, followed by Durrës County with 856 projects and Vlorë County with 748 projects, while Kukës County ranks lowest in the number of approved projects with environmental impacts.

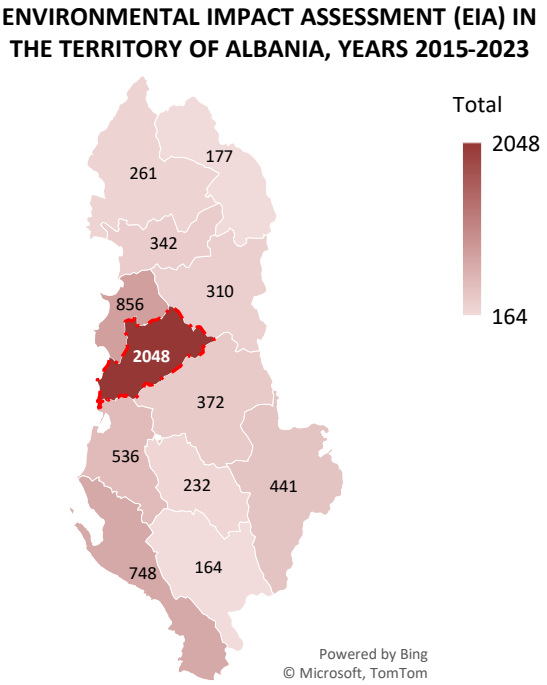


Figure 8. Environmental impact assessment (EIA) in the territory of Albania (year 2015-2023).

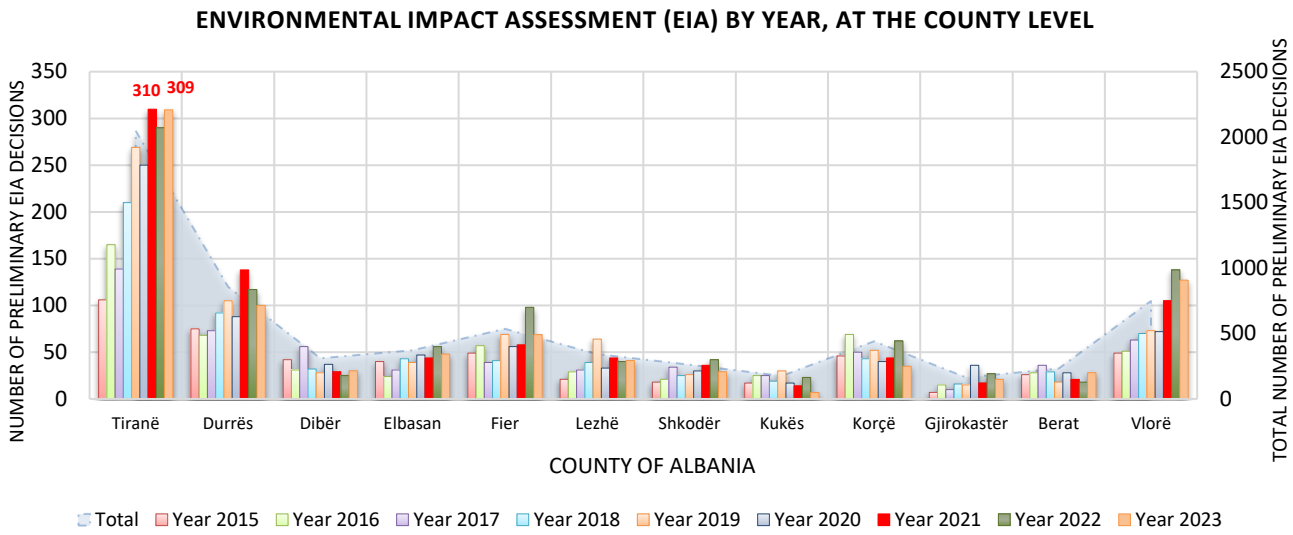


Figure 9. Environmental impact assessment (EIA) by year, at the county level.

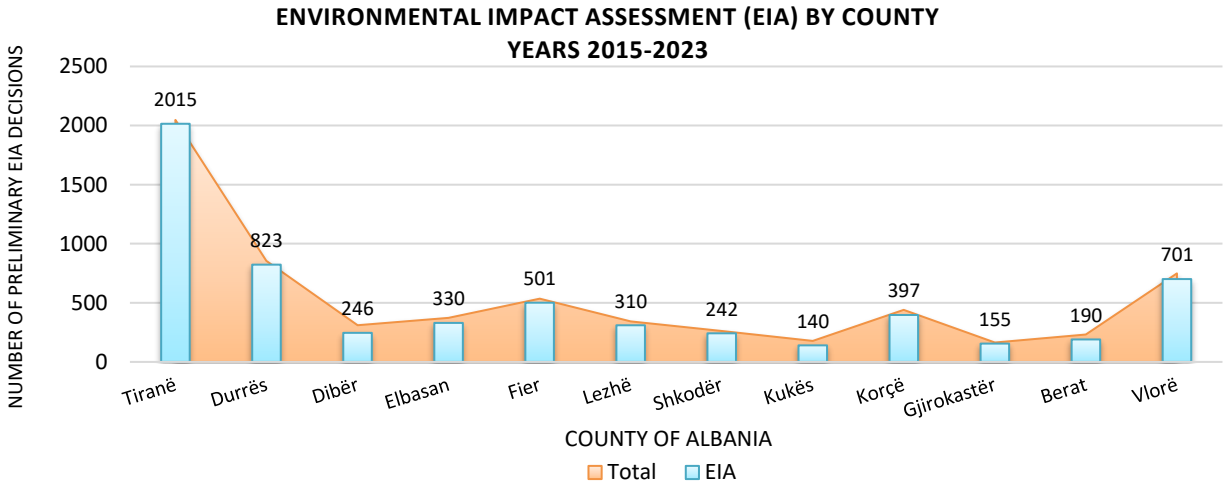


Figure 10. Environmental impact assessment (EIA) by county (year 2015-2023).

Based on the years evaluated for each county of the territory, as presented in the graphs above (Fig. 9 and Fig. 10), it emerges that for projects with environmental impacts in Tirana County, the highest number of Preliminary EIA Decisions have been issued, with 2021 topping the list with 310 decisions and 2023 with 309 decisions.
At the national level, Tirana County holds the highest number of approved projects with environmental impacts, with 2,015 approved projects, of which 1,491 are located only in the Municipality of Tirana, and 1,466 of these approved projects in the Municipality of Tirana are Preliminary EIA Decisions, as presented in the following graph (Fig. 11).

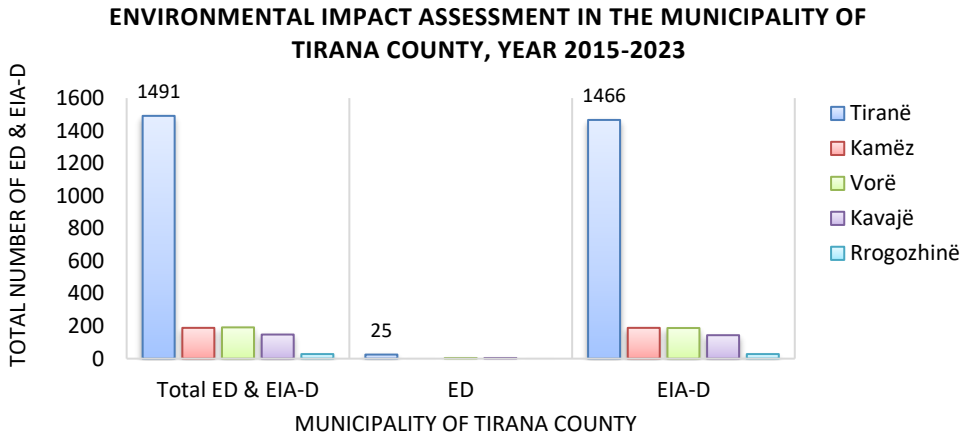


Figure 11. Environmental impact assessment in the Municipality of Tirana County (year 2015-2023).

.

3.4 The trend of environmental impacts from construction sector projects for residential and non-residential buildings in the Municipality of Tirana for the period 2015–2023

Being the region with the highest number of approved projects with environmental impact, part of the Tirana region are the municipality of Tirana (Capital), the municipality of Kamëz, the municipality of Vorë, the municipality of Kavajë and the municipality of Rrogozhinë. In the following graphs (Fig. 12 and Fig. 13), the percentage distribution of approved projects with environmental impacts is presented at both the national level and at the level of Tirana County (including its constituent municipalities).

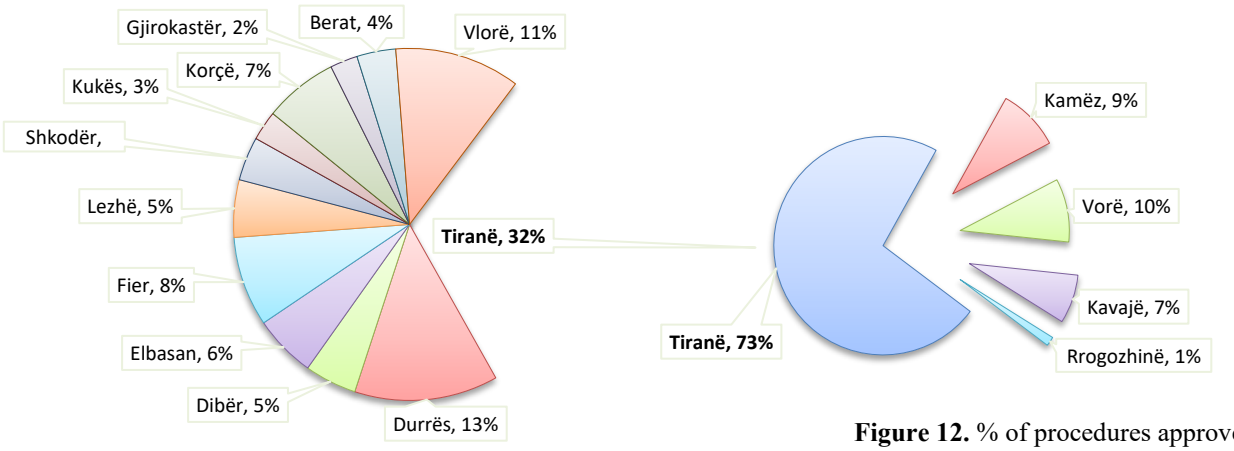


Figure 12. % of procedures approved for projects that have an impact on the environment by county and municipalities of the Tirana county.

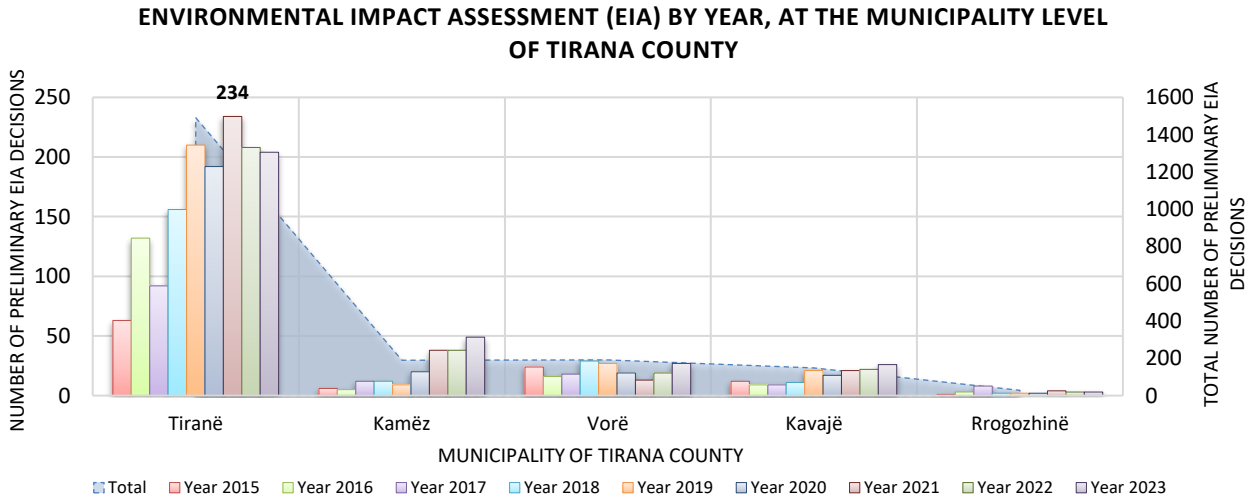


Figure 13. Environmental impact assessment (EIA) by year, at the municipality level of Tirana County.

The analyzed data indicate that, at the national level, 32% of projects with environmental impacts are assessed in Tirana County, with 73% of these projects concentrated only in the Municipality of Tirana.

The Municipality of Tirana is the municipality with the highest number of approved procedures for projects with environmental impacts, with a total of 1,491. The highest number of approved procedures in this municipality is 234, which were approved in the year 2021.

For the purpose of identifying projects with environmental impacts exclusively from the construction sector, a classification has been carried out for 1,466 approved preliminary procedures for projects with environmental impacts solely within the territory of the Municipality of Tirana for the period 2015–2023, according to Annex II of Law no. 10440, dated July 7, 2011, "On Environmental Impact Assessment," as amended. This classification reveals that 1,353 of these projects with environmental impacts belong exclusively to the construction sector, as presented in the following graph (Fig. 14).

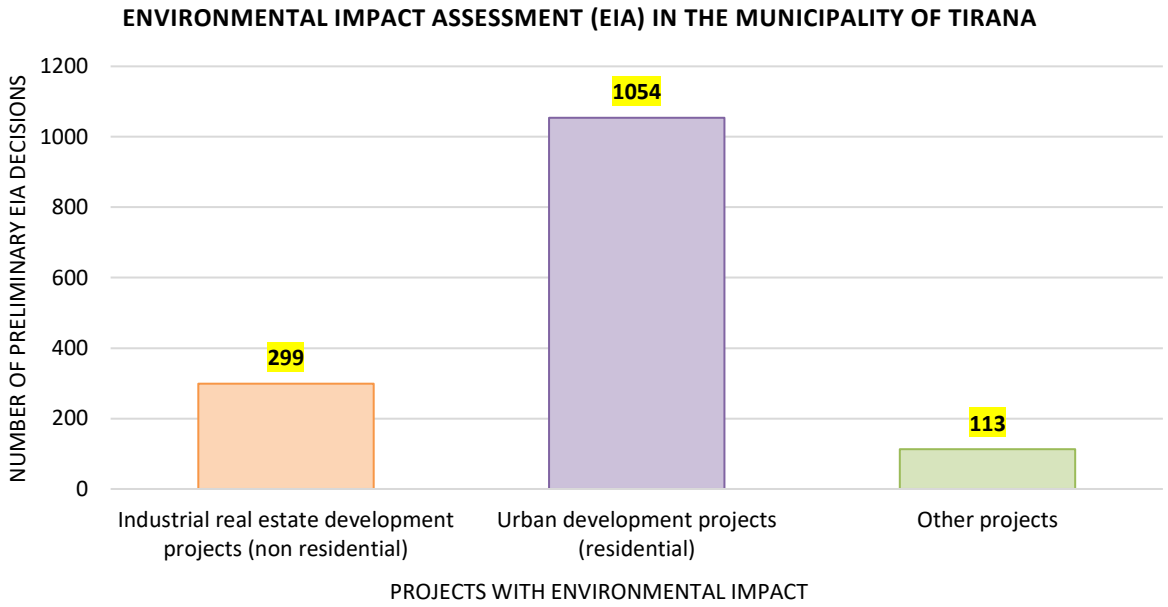


Figure 14. Environmental Impact Assessment (EIA) in the municipality of Tirana.

The analyzed data indicate that out of 1,353 environmental impact projects in the construction sector, 299 are projects for industrial real estate developments (non-residential buildings), 1,054 are projects for urban developments (residential buildings), and 113 are other projects.

For the evaluation period, the average number of new construction permits approved annually in the territory of the Municipality of Tirana is 150.33 permits per year. Based on construction practices, the execution of works for residential and non-residential building projects takes between 18 and 36 months, depending on the area and volume of the works. This means that at the same time in the territory of the Municipality of Tirana, between 225.5 and 451 constructions are either completed or under construction.

*** *Note: In this study, reconstruction projects and the construction of individual residential buildings (1-3 stores) have not been evaluated, as they are not subject to the environmental impact assessment procedure.*

4. Discussion

The evaluated data indicate that the construction sector has positively contributed to the country's economic development by producing goods primarily concentrated in the territory of the Municipality of Tirana. However, this development is accompanied by continuously negative environmental impacts and an irreversible cumulative effect on the consumption of the territory's space.

Gross Domestic Product (GDP) indicators, construction permits, and environmental impact assessments for the evaluated periods indicate that central and local territorial planning policies have enabled the construction sector to become one of the primary economic activities. This sector is predominantly concentrated in the territory of the Municipality of Tirana, thereby exerting pressure on the area's environmental components.

These policies, integrated into the general local plans and detailed local plans, for the period 2017-2023, have caused the territory of the Republic of Albania to lose an average of 1,848,039 m² of open space per year solely due to the construction sector, with the largest loss occurring in the territory of the Tirana municipality, averaging 1,273,849 m² of open space per year. Viewed from an environmental perspective, this high number of approved building permits has been accompanied by an increase in occupied space, which will permanently be lost to the environment and the residents of the Albanian state, denying future generations the right to inherit available open space. [17].

At the national level, the figures may not be significant, but if we distribute them at the county level, it turns out that the economic activity of construction is primarily concentrated in the Tirana County, followed by Durrës county, resulting in uneven economic and social development among the counties, which affects the sustainable development of the country at the national level.

From the assessed data, it turns out that the construction sector is among the 3 (three) main contributors to environmental impacts, classified by importance rather than by the magnitude of the impact.

The main environmental impacts on the territory of the Tirana municipality have been caused by the implementation of construction projects, directly and indirectly affecting the condition of environmental components such as air, soil, water, climate, flora, and fauna, in their entirety and interactions with one another

The data on construction activity show that the territory and environmental components of the Tirana municipality are more exposed to environmental impacts, making it the municipality with the highest loss of open space and the county where cumulative pollution from the construction sector is the greatest.

5. Conclusion

The lack of sustainable and strategic planning has resulted, year after year, in an increase in the number of projects with environmental impact (construction sector for residential and non-residential buildings), threatening the environment of the Tirana municipality's territory.

For several consecutive years, the territory of Albania, including the Tirana municipality, has lacked general and detailed local plans, which has allowed the construction sector to develop without interacting with existing projects. Even today, in the territory of the Tirana municipality, detailed local plans have not been approved for certain structural units.
The central and local policies implemented over these years in the field of environmental protection and territorial planning, as well as the unjustified market demand for residential and non-residential constructions, have exposed the territory of the Municipality of Tirana to continuous environmental and social impacts, increasing pressure on the environmental components in this area.
The development of the territory of the Municipality of Tirana, mainly in the construction sector for residential and non-residential buildings, has caused other economic sectors to develop at very slow rates. This is due to the lack of early-stage planning, leading to unsustainable and non-strategic territorial development.
As a result of the lack of early-stage planning and the promotion of sustainable and strategic environmental policies by public authorities, the absence of interaction between existing projects, new projects, and planned ones has led to an uneven distribution of the construction sector at the national level, centralized only in the Tirana County, with the Municipality of Tirana taking the lead.
The lack of an integrated environmental management system by public authorities, a system that would manage the entire mechanism of environmental protection, highlights a significant issue regarding the quality of air, water, noise, soil, waste, landscape, etc., in the Tirana County, where the highest concentration of construction activities impacting the environment is located.
The integrated environmental management system should be established as soon as possible, including the environmental information system and the monitoring of the environmental condition. This system should be accessible to all public authorities, and the public should have access to it.
The lack of an integrated network for monitoring the state of the environment, including environmental quality such as air, water, noise, soil, waste, biodiversity, landscape, flora, and fauna, is both a cause and consequence of unsustainable and non-strategic territorial development.
The lack of an information system, which should include a geodetic GIS platform, has caused a chain reaction where environmental planning is neither sustainable nor strategic, thereby threatening the environmental components in the territory of the Republic of Albania, primarily the territory of the Tirana municipality.
Environmental policies, strategies, plans, programs, and projects cannot be drafted, reviewed, or modified with the aim of protecting the environment in its entirety and promoting the sustainable development of the country, unless there is information about the components of the environment.

References

Institute of Statistics of Albania https://www.instat.gov.al/en/themes/economy-and-finance/national-accounts-gdp/#tab2

Law no. 8417, dated 22.11.1998 “Constitution of the Republic of Albania” as amended, published in the official gazette no. 28, dated 07.12.1998, pages [10–11]

Law no. 10 431, dated 9.6.2011 “On Environmental Protection” as amended, published in the official notebook no. 89, dated 30.06.2011

Law no. 10 440, dated 7.7.2011 “On Environmental Impact Assessment” as amended, published in the official notebook no. 101, dated 01.08.2011.

Law no. 107/2014, dated 31.7.2014 “On Territorial Planning and Development” as amended, published in the notebook no. 137, dated 11.09.2014.

Institute of Statistics of Albania https://www.instat.gov.al/en/themes/industry-trade-and-services/structural-business-statistics/#tab2

National Territorial Planning Agency https://planifikimi.gov.al/index.php?id=732

The Institute of Statistics of the Republic of Albania

National Environmental Agency

The official document issued by the minister, for the environmental assessment of projects subject to an in-depth environmental impact assessment, Article 6, point 7 of law no. 10440/2011

The official document issued by the NEA, for the environmental assessment of projects subject to a preliminary environmental impact assessment, Article 6, point 6 of law no. 10440/2011

https://www.instat.gov.al/en/themes/

https://akm.gov.al/cat_doc/vleresimi-i-ndikimit-ne-mjedis/

https://www.instat.gov.al/en/themes/economy-and-finance/

https://www.instat.gov.al/en/themes/industry-trade-and-services/construction/

https://akm.gov.al/ova_doc/vendimet-e-komisionit-te-shqyrtimit-te-aplikimeve-per-vleresimin-e-ndikimit-ne-mjedis

PROBLEMS OF SUSTAINABLE AND STRATEGIC ENVIRONMENTAL PLANNING OF THE INDUSTRIAL (NON-RESIDENTIAL) SECTOR IN ALBANIA”, autor Msc. Kleant SEMEMA, Prof. Neritan SHKODRANI, ISBN (print): 9789928352286, ISBN (e): 978-992-8-352-29-3, DOI: 10.37199/c41000104, Fq [41 – 66]