

ENVIRONMENTAL EFFECTS FROM THE OPERATION OF HERAKLION AIRPORT “NIKOS KAZANTZAKIS”. NECESSITY OR NOT OF ITS RELOCATION

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ABSTRACT

Airport operation affects its location both negatively and positively. It is undoubtedly related to socio-economic development in the region, increasing income and jobs. However, it relates to the activity of air transport in general and airports, in particular with negative effects on the environment and, as a result, on local communities. This diploma thesis addresses the negative impacts of airport operations on the environment as well as practices to manage these environmental impacts. Conclusions are made as to whether airport operations have more positive or negative per region. It also assesses the impact on the environment of the operation of Heraklion Airport and whether its relocation to Kastelli Pediados is a better solution. The basic scientific knowledge was acquired from the study of Greek and foreign literature and legislative framework regarding the interaction of environment and air transport / airports. The effects of the operation of the existing airport "Nikos Kazantzakis" were recorded and described, followed by the collection and submission of data for the airport under construction in Kastelli Pediados. There are also interviews with organizations and residents and recorded views of various organizations. In conclusion, there is a need for harmonious coexistence of airports with local communities. The existing airport of Heraklion "Nikos Kazantzakis" has exhausted its capacity. Proposals for upgrading within the residential fabric of Heraklion as well as the construction of the "sloping corridor" are considered unsustainable. On the other hand, the Under Construction Heraklion International Airport in Kastelli is expected to have many positive benefits for Crete and local communities. Its environmental impact is considered to be fully manageable. The closure of "Nikos Kazantzakis" must be accompanied by the use of its area for the benefit of society.

KEYWORDS

Airports; Environmental impacts; Heraklion; Relocation

1. INTRODUCTION

Airports are nowadays one of the biggest transportation projects and affect the area around them, both positively and negatively ^[1].

The benefits of an area in which an airport operates are many and mainly concern the socio-economic sector. The operation of an

airport in an area, as a rule, contributes to the increase of the income of the citizens and creates new jobs. The socio-economic development of aviation in the world economy is important. According to recent figures, aviation supports 65.5 million jobs and generates \$ 2.7 trillion in global economic activity ^[2].

But in addition to the benefits they bring, airport activities are directly or indirectly linked to environmental impacts on the environment and local communities. Their operation is associated with noise pollution, water pollution, solid waste production. At the same time, they increase greenhouse gas emissions and contribute to global warming and global climate change. Scientific studies confirm the adverse multiple ecological footprint of aviation and are undoubtedly among the activities that contribute to the aggravation of environmental problems [3].

The growing concern for the environment and the awareness of the societies about the ways of dealing with it, impose legislative, social and economic pressures for the implementation of operating frameworks for every activity of the airports.

Such is the case of Heraklion airport "Nikos Kazantzakis" which its foreseen relocation to Kasteli area is estimated to have multiple impacts and benefits for both sites.

2. METHODOLOGY

The purpose of this work is to investigate, analyse and assess most important environmental impacts that occur during the construction and operation of airports and adversely, but also positively, the quality of life of the residents of the area that hosts the airport.

Measures are laid down for airport management policies to mitigate adverse environmental consequences, in line with the European and National legal framework governing the operation of airports.

Also, every environmental impact is presented diligently and the consequences it has on both man-made and natural environment, environmental management practices and actions implemented by airports to reduce the adverse effects on the environment are reported and analyzed.

Impacts such as air pollution, water and soil pollution, solid and liquid waste generation

create problems in the operation of airports themselves and their acceptance by local communities.

The impact on the quality of both the natural and man-made environment in the city of Heraklion and especially in the former Municipality of Nea Alikarnassos is estimated, as a result of the long-term installation and operation of the airport "Nikos Kazantzakis".

There is a review of relevant Greek and foreign literature that studies the effects of transport in general and airports in particular, while finally interviews were conducted with officials of relevant bodies in order to clarify individual issues and concerns.

3. RESULTS AND DISCUSSION

The aviation system, due to the complexity of the elements it incorporates, in terms of construction, infrastructure and operation has various environmental and social effects, both negative and positive in some cases. As a result, especially in the stages of announcements and studies of new airports, problems and reactions of social acceptance are created, mainly at the local level.

The literature review on the subject, and especially the detailed recording of the individual elements of airport- environment interaction, highlighted the need for comprehensive management of the potential negative effects of airports, both in the natural and man-made environment, both from the initial design stages and during the operation phase [4- 6].

3.1. Heraklion airport "Nikos Kazantzakis"

The extensive presentation of the environmental situation that governs the current operation of the airport "Nikos Kazantzakis", in combination with published reactions and views of stakeholders, as well as the results of a relevant questionnaire and interviews conducted in the context of this work, seems to justify the need for its relocation. Especially based on the results of the research, the nuisance and the effects

mainly on people, in combination with the unsuitability of the available space for additional possibilities and expansion improvements, strongly advocate the closure of the existing airport and the creation of a new one in a more suitable location.

3.2. New Heraklion airport in Kasteli Pediados

Based on the plans and studies that existed for several years for the new International Airport of Crete in the area of Kasteli Pediados, a comprehensive presentation and analysis of the estimated environmental impact was made, as well as recording published reactions, positive and negative, regarding the project in question.

Opinions differ, as the combination of socio-economic development is often at odds with that of environmental protection. However, given that the new airport has now begun to be built in practice, attention must be focused on the strict observance of any environmental conditions and on the other hand at its harmonious coexistence with the wider social environment.

3.3. The future of the existing Heraklion airport area and its facilities

Given that the new airport in Kasteli is foreseen to be completed in 2025, the future utilization of the area of 3,000 acres of the "Nikos Kazantzakis" airport should include an integrated approach for the benefit of both the general development and economy and of the local community.

The spatial approach, which directly concerns, among others, the municipal unit of Nea Alikarnassos, should encapsulate the needs and priorities of the local community, with an open field in modern development interventions, such as. are being implemented today for the area of the former airport in Elliniko, Attica. The specific space could e.g. to include a multidisciplinary metropolitan and business park, with infrastructure of social, sports, cultural and tourist character, maybe even residential.

4. CONCLUSIONS

Heraklion airport "Nikos Kazantzakis" completes its life cycle.

The effects of its operation, mainly the noise and its danger, have left serious marks on the life, health and development of the inhabitants, mainly of Nea Alikarnassos but also of the surrounding areas.

The main reason is the location of the airstrip, heading from East to West and its direct contact with densely populated areas of Nea Alikarnassos.

Its confinement in this location does not allow the expansion of its building facilities, resulting in handling and overcrowding of passengers, especially during peak periods.

Thus, Heraklion airport, from the website "Sleeping in Airports", was voted the worst in Europe. The criteria were: comfort, infrastructure, services, dining options, customer service, possibility to sleep at the airport, ease of movement.

Recently, the upgrade and expansion of its building facilities were undertaken, with their donation, by the duty free shops, with an expansion of 2,900 m² and a renovation of 8,000 m², for better service of the passengers and increase of the number of gates. The service has improved today.

Nevertheless, it is obvious that even after this upgrade, the "Nikos Kazantzakis" airport can not cover this increased traffic, nor contribute to its further increase.

The much-discussed upgrade project, the construction of the "sloping corridor", is neither feasible nor sustainable. Major port projects are required, extensive and serious alteration of the shape of the coastal area, violation of the aesthetics of the landscape and deep disruption of terrestrial and marine ecosystems, with a slight reduction of environmental impact and the re-creation of an airport with limited possibilities.

Any upgrade can not be done in the urban fabric of Heraklion and cover the planning of a long-term project, such as the New

International Airport of Heraklion in Kastelli, which was finally established in February 2020 and will be commissioned in 2025.

The new airport in Kastelli, aspires to contribute to Greek tourism and the overall economic development of the country. It will be an airport gateway, a meeting place for Europe and the Middle East.

It will upgrade the role of Crete and the country in the Eastern Mediterranean region. Its location was made with a very serious planning:

- Balanced development of Northern and Southern Crete will be achieved.
- It is close to tourist areas.
- Creates a low environmental footprint due to its uninhabited area of installation and strict environmental conditions.
- Its energy footprint will be very low and with a specific rating for airports.
- The specific project will be carried out under strict conditions and licensing, in accordance with European and National legislation.
- The new state-of-the-art road network that will be built, will significantly reduce the distance and travel time to the airport. Besides, the big tourist destinations like Hersonissos and Malia, will be closer to it.
- Strict environmental conditions will protect agricultural crops. The planned development of the place will allow the better promotion and distribution of agricultural production.

Every big project has positive and negative effects. It is necessary to activate the society for the observance and, if necessary, tightening

of the environmental conditions, the relocation of the affected settlements, the restoration of humble hills and the implementation of all those implemented in advanced countries, in corresponding cases, in order to create a "green airport".

On the other hand, the Region of Crete, the municipality of Heraklion, institutions and residents, must have a say in the utilization for the benefit of society as a whole, the area of the airport "Nikos Kazantzakis" after its closure.

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