

Evaluation of Environmental Impact Assessment Framework Effectiveness

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In 2011, Greece reformed its Environmental Impact Assessment (EIA) system publishing law 4014/2011 on the assessment of effects of certain public and private projects on the environment. However, six years since its issuing, no systematic evaluation has taken place to establish whether this legislative reform achieved its aims. In this paper, the results of an extensive EIA system effectiveness evaluation study which makes use of data from the first ever Greek EIA National Survey, additional in-depth interviews and a quality review of over 100 EIA statements are presented. The methodology involved an exhaustive legislative review juxtaposing the EU and Greek legislative provisions. Furthermore, in order to more holistically evaluate the effectiveness of the EIA system, a National survey was conducted, involving key EIA stakeholders (EIA Specialists and regional Environmental Authorities, as well as in the ministry officials). The results of the study highlight serious issues with the Greek EIA System depicting a chasm between new legal provisions and implementation in practice. The most significant weaknesses are located in the Alternatives, Non-technical Summary and Mitigation measure categories. It should be highlighted that the most significant reason for the insufficiency of the EIA system according to stakeholders is the fact that the supporting tools prescribed in the legislation (e.g. Electronic Environmental Registry) have not yet been activated.

1. Introduction

Environmental Impact Assessment (EIA) can simply be defined as a systematic process to identify, predict and evaluate the environmental effects of proposed actions and projects (Glasson et al., 2005). The purpose of the EIA is to identify and evaluate the environmental impacts of an action or activity prior to the decisions regarding its implementation. Additionally, EIA should not only consider the environmental impacts of an activity but also social, cultural and health impacts in an integrated fashion. Various legislative schemes, regarding the establishment of EIA systems, have been introduced worldwide over 30 years ago (Canter, 1994). Each EIA system is unique and it is a product of a particular set of legal, administrative and political circumstances (Wood, 2003). However, the effectiveness of EIA systems is a matter under extensive examination. According to Wood (2003), the controversy is not only on whether EIA can be viewed as effective but also on all the factors that can be used to explain why a EIA system is effective. In addition, it is very important to examine which evaluation criteria should be used when evaluating an EIA system and how this system can be improved.

Greece is the country with the largest number of EIAs conducted, with an average of 1540 Environmental Impact Statements (EIS)/year (YPEKA, 2014). Post law 4014/2011 EIA project screening is done using an exclusive threshold approach which divides projects into 12 groups according to the nature of the project and three categories A1, A2 and B. Category A1 includes large projects requiring an EIS and which are licensed by the Ministry of Environment. A2 Category is similar to A1 one unless projects are smaller and are licensed

by the Decentralised Authorities of the Regions. Lastly, category B includes smaller projects, such as Small – scale waste management facilities and gas stations (See Art. 8 par. 3 of L. 4014/2011 & MD 1958/13.01.2012), which do not require an EIA but are automatically subjected to Standard Environmental Terms and Conditions. However, in the case that a B project is located within a NATURA 2000 site boundaries, it also needs to submit an Ecological Impact Assessment to the regional authorities (Figure 3.1). In 2010, the Memorandum of Understanding with European troika - a decision group formed by the European Commission (EC), the European Central Bank (ECB) and the International Monetary Fund (IMF)- required the reform of the EIA system with the aim of reducing the time needed for obtaining an EIA approval and for that purpose Law 4014 was enacted in 2011. The Greek Law No. 4014/2011 (Environmental licensing of projects and activities) harmonised the Greek environmental legislation with the 2011/92/EE EU Directive on the assessment of the effects of certain public and private projects on the environment. With the enactment of Law 4014 (Environmental licensing of projects and activities), which was published in September 2011, the procedures concerning environmental licensing of projects and activities were revised. Key objective of this legislative framework was the simplification, streamlining and shortening of the procedures concerning environmental licensing, while ensuring a high level of environmental protection. However, even if five years have passed since the reform of the EIA legislative framework, until now there has been no study evaluating the effectiveness of the EIA system introduced by Law 4014/2011. It is also worth noting that Law 4014/2011 was enacted prior to the latest revision of the EU EIA Directive (2014/52/EU) and it has to be determined, yet whether Law 4014/2011 needs further legal revision, in order to ensure its compliance with the latest EU Directive.

Therefore, the main purpose of this study is to assess the implementation of Law 4014/2011, by appraising the quality of a representative number of Environmental Impact Statements that have been submitted post 2011, as well as by conducting the first ever National Survey of key EIA stakeholders (private sector EIA Specialists and regional Environmental Authorities representatives, as well as in the ministry officers). The basic aim of the proposed methodological approach is to examine the effectiveness of Environmental Impact Assessment legislative system and determine the quality of Environmental Impact Statements conducted in Greece.

2. Methodology

In order to evaluate the effectiveness of the EIA system in Greece prescribed by Law 4014/1011, an extensive EIA system effectiveness evaluation methodology has been employed. More specifically, the proposed methodological approach (Figure 1) involves both the quality evaluation of Environmental Impact Statements (EIS) (review of 105 EIS) with the use of the established EIS review checklist by Glasson et al. (2005) and the development of National EIA Stakeholder Analysis.



Figure 1: EIA effectiveness evaluation research design.

Furthermore, a review of 105 Environmental Impact Statements (EIS) using the established EIS review checklist by Glasson et al. (2005) was conducted. The EIS review covered the period of 2011 to 2015 and the sample included projects from 11 out of the 12 categories, as well as of 6 out of the 7 Regions of the country. The EIS review methodology included a cross evaluation of results for 45% of the sampled EIS establishing an average of 95% match in evaluation results, indicating high confidence levels in the results obtained.

The Oxford Brooked University Review Package (Glasson et al., 2005) is divided into eight district categories that assess the quality of an EIS regarding the following aspects: (i) Description of the Development, (ii) Description of the Environment, (iii) Scoping, Consultation and Impact Identification, (iv) Prediction and Evaluation of Impacts, (v) Alternatives, (vi) Mitigations and Monitoring, (vii) Non-technical Summary, (viii) Organisation and Presentation of Information. The EIS were evaluated against 92 criteria, each of which is graded separately and according to the quality of the information provided in the EIS. The grades vary from 0 to 5 on the basis of the grading system established by the Manchester University, in which grade 0 stands for very unsatisfactory with important tasks poorly done or not attempted and 5 for work that has generally been well performed with no important omissions. Simultaneously the EIS were examined according to the Minimum Requirements, as prescribed in the EIA Regulations (Table 2).

3. Discussion of Results

3.1 EIS Evaluation Results

According to Law 4014/2011 all projects and activities for which environmental licensing is required have been classified into two categories: A (which is divided into the subcategories A1 and A2) and B. They are also divided into 12 groups common to all categories (Table 1). Subcategory A1 entails the projects and activities that may cause severe adverse effects on the environment, while subcategory A2 entails the projects and activities that may cause significant environmental effects. For projects listed in A category an EIA study is mandatory. Category B includes projects and activities involving local and not significant environmental impact.

Table 1: Groups of Projects and Activities (Hellenic Republic, 2011).

N° of Group	Projects and Activities	N° of Group	Projects and Activities
Group 1:	Land and air transport projects	Group 7:	Bird and livestock facilities
Group 2:	Hydraulic projects	Group 8:	Aquaculture
Group 3:	Port projects	Group 9:	Industrial and associated activities
Group 4:	Environmental infrastructure systems	Group 10:	Renewable Energy Sources
Group 5:	Mining activities	Group 11:	Energy, fuel and chemical transportation
Group 6:	Tourist facilities	Group 12:	Special projects and activities

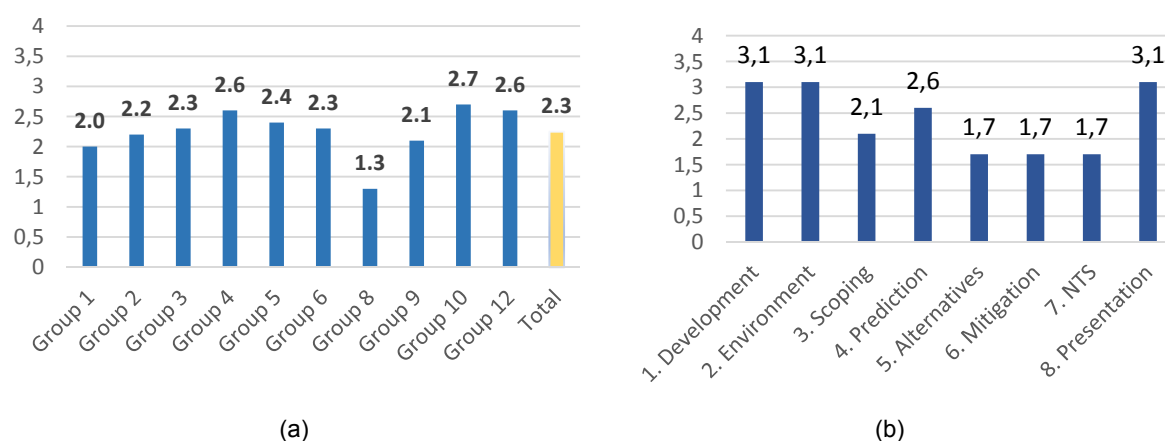


Figure 2: Total performance: (a) per Group, (b) per Category of Criteria.

In this section, the results of the critical evaluation of Greece EIA system conducted using Woods (2003) criteria are presented. Figure 2a presents the overall grade for each group, as well as the total grade for the entire sample of EIS examined. As demonstrated, Groups 4, 10 and 12 received the highest grades, which

were 2.7, 2.6 and 2.6, respectively. Groups 8, 1 and 9 were awarded the lowest grades, which were 1.3, 2 and 2.1, respectively. However, the total grades seem to be very close to the base grade of 2.5, which means that the EIS did not perform well in the evaluation against the 92 criteria. Figure 2b illustrates the total average grade of the sample evaluated against the 8 categories of criteria. As demonstrated in the charts, the most problematic sections in the EIS submitted appear to be the Alternatives, Mitigation and Monitoring and the Non-Technical Summary, all of which received an average grade of 1.7. Also Scoping, Consultation and Impact Identification category received a relatively low grade, below the average of 2.5.

The EIA regulations provide with the required basic contents of an EIS. Apparently, the engineer thoroughly review it and follow the suggested guidelines in order to compose an EIS that is approved by the competent authority. However, most often, engineers do not conduct an assessment based on a concrete methodology and data collection. For that purpose, the final grades were examined based on the Minimum Requirements of EIA Regulations presented in the previous section. Figure 3a demonstrates the performance of each group against the minimum requirements of EIA Regulations.

Almost all Groups seem to perform better than the average of 2.5 except Group 8. The Groups that have performed better are Group 4 (Environmental Infrastructure Systems), Group 3 (Port Projects) and Group 12 (Special Projects and activities). The total performance per minimum requirements of the total EIS sample that was examined is presented in Figure 3b. The categories Alternatives and Non-Technical Summary received the lowest grades, which are also below the average of 2.5. These categories were also the most problematic in the examination of the Best Practice requirements presented above. However, in the rest of the minimum requirements the EIS received relatively higher grades. The Description of the Development received the highest grade, which was 4.2, followed by the description of the Measures (3.5) and the Main Effects (3.4).

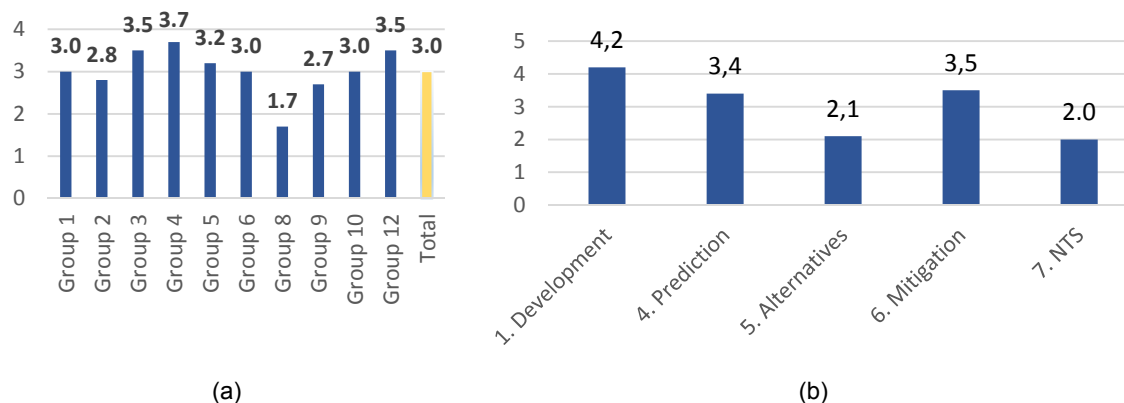


Figure 3: Total performance (Minimum Requirements): (a) per Group, (b) per Category of Criteria.

3.2 National Survey Results

In 2015, a Greek National Survey of EIA stakeholders using an online survey questionnaire, including both closed and open-ended questions, was conducted. A total of 125 responses were obtained, 46% from Competent Authority Representatives. More specifically, they were employees occupied in the public sector, in agencies that are relevant to the Environmental Licensing Process, such as the Ministry of Environment, and Environment Departments of Decentralised Administrations and Prefectures across the country. 35% of the respondents were EIA Consultants. Lastly, the group "Other", consisting 17% of the sample, included professionals with an indirect involvement with EIA processes, such as lawyers and NGO representatives. In this section, the National Survey Results are presented. Overall the results of this study indicate that the key weakness of the Greek EIA system is its (lack of) implementation. Indicatively, only 43% of survey and 0% of interview respondents perceive that the EIA System ensures minimisation of environmental impact (Figure 4a). To the statement "the EIA system is being implemented effectively in Greece" only 15% of survey and 0% of interview respondents agreed, with common comments being "it remains just a tedious administrative exercise" (EIA Consultant) "it's a paper based exercise that doesn't protect anything" (EIA Authority official). The perception of respondents about EIA System Effectiveness opinions was clearly divided (Figure 4b). However, this result can be explained by considering that the respondents believe that the Law most important provisions have never been put into action.

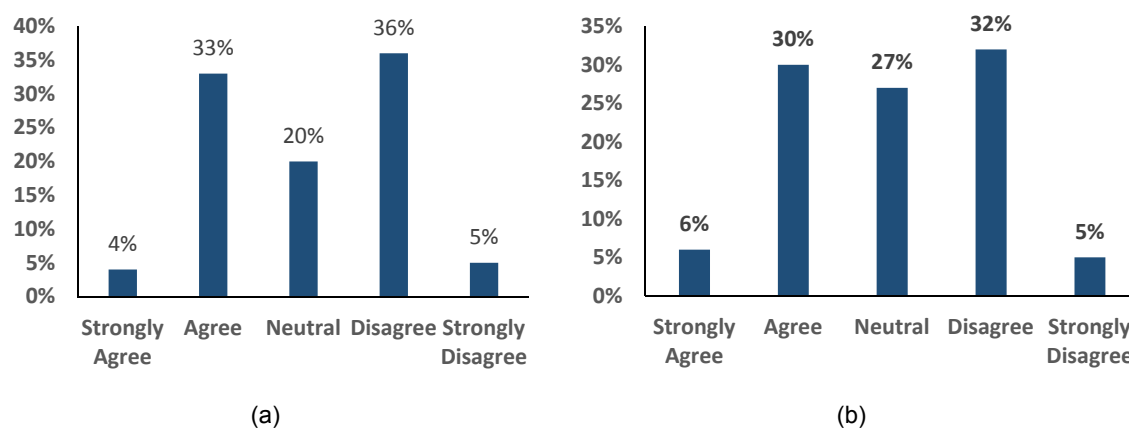


Figure 4: Questions 3 and 4: (a) The existing legal framework is adequate to ensure the effective implementation of the Environmental Licensing Process in Greece (Q3), (b) The effectiveness of the environmental licensing process of projects and activities has improved as a result of Law 4014/2011 (Q4).

According to the respondents, the two most important elements of the reform were the establishment of the e-ER and e-ID, as well as the Special Agency of Environmental Inspectors (Figure 4.2), which however, haven't been implemented to date. It is not surprising, therefore, that respondents are puzzled when asked about the effectiveness of the legislative reform (Table 2). It should be highlighted that, in order to obtain more in-depth qualitative information, particularly about the barriers to implementation of the legislation and recommendations for improvement, additional 28 semi-structured interviews were conducted with experienced stakeholders, such as officials from the Ministry of Environment and Heads of leading environmental NGOs.

Table 2: Effectiveness of the environmental licensing process of projects and activities.

N° of Responses = 100	Relative Rank Scores	N° of Responses = 124	Relative Rank Scores
The supporting tools prescribed by the legislation have not been activated (e.g. Environmental ID)	3.3	Establishment of Electronic Environmental Registry-Environmental ID	4.9
The legislation is not implemented.	3.2	Special Agency of Environmental Inspectors	4.8
There is lack of guidance.	3.0	Establishment of Certified EIS Evaluators Registry	4.1
The EIS consultation process is not effective.	3.0	Activation of effective public consultation process	4.0
The revised law is not well written.	2.6	Department of Environmental Licensing	3.6
		Special Ecological Studies	3.5
		Establishment of Central (Regional) Council for Environment Licensing	3.1

The respondents about the time frame characterise the procedures as time consuming due to the many separate procedures and statutory consultations required for environmental licensing. The procedures were also considered as complicated and costly for small scale projects by the competent authority representatives. As far as the expertise, according to the respondents, the most frequent barrier for the effective implementation of the environmental licensing process is the fact that stakeholders involved in the licensing process (staff, students, public etc.), are not well informed about the legislation and the procedures. Environmental Managers/Planners claim that EIA is not conducted by relevant experts, in each field, as it should be done, while competent authority representatives claim that there are not specific guidelines/criteria for each type of activity. In order to determine the total preference of the respondents and determine the ranking of the significance of the possible weaknesses mentioned above the relative rank scores for each reason was calculated (Table 3).

Table 3: Order of significance for possible tools/structures presented in Question.

N = 124 (Number of Responses)	Relative Rank Scores (Scale 1 - 5)
The examination of basic alternatives is not sufficient, as well as the description of the main options that take into account environmental impacts.	4.22
Uncertainties regarding the data used for the projections and the effectiveness of the measures taken to ensure the protection of the environment are not presented.	4.20
The data collected and presented to identify and assess the significant impact on the environment is insufficient.	3.90
The procedure and the results of the consultation process conducted during the EIA process are not incorporated in the final report (EIS).	3.59
A brief description of the scoping process is not included.	3.10
The description of the project, including information on the site, design and size of the project, is usually inadequate.	2.75

4. Conclusions

Greece 2011 EIA reform was a significant improvement to its predecessor, including some elements of innovation, such as the e-ER the e-ID and the integrated life cycle approach to EIA licensing, participation, inspection and monitoring, which would be of value for wider consideration by international policy makers and researchers. According to the EIS quality evaluation results, the majority of EIS seem to perform below the average grade of 2.5 when compared against the 92 Best Practice Requirements criteria. However, they seem to perform relatively better against the minimum requirements criteria. The most significant weaknesses are located in the Alternatives, Non-technical Summary and Mitigation measures categories. Most of the EIS follow a specific template but the methods of assessment and the data presented are not justified. For the improvement of the EIS quality the issuing of technical instructions regarding EIA theory and practice was suggested. In addition, also according to the results of the National Survey, EIA required the collaboration of experts in each field. As concerns the results of the National Survey conducted among various stakeholders involved in the EIA process, the vast majority of the respondents believe that the Environmental Licensing process is not applied effectively in Greece. However, they were divided on whether the legislation reform is adequate to ensure the effective implementation of the Environmental Licensing process and on whether the process has improved as a result of Law 4014/2011. The most significant reason for the insufficiency of the EIA system according to the respondents was the fact that the supporting tools prescribed in the legislation have not been activated. These tools include the Special Agency for Environmental Inspectors and the Registry for private EIS evaluators but the most important is the Electronic Environmental Registry and the concept of Environmental ID, which incorporate all the relevant information of a project or activity. The successful implementation of Law 4014/2011 is based on the operation of the Electronic Environmental Registry, since most of its individual procedures, such as the consultation process and monitoring, depend on it.

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