

Greece's reformed EIA System: Evaluating its implementation and potential

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Abstract

The Memorandum of Understanding (MoU) signed by the Greek government and the troika in 2010 contained numerous austerity policies and requirements for administrative reforms, among which that of the national Environmental Impact Assessment (EIA) system. Complying with this requirement, Law 4014/2011 was passed aiming at reducing bureaucracy and increasing the country's appeal to investors whilst ensuring environmental protection. The present paper provides the first systematic, multiscale and multidimensional evaluation of new EIA system's effectiveness. The evaluation is based on, first, the results of a Panhellenic survey, involving key EIA consultants and authorities; second, on additional in-depth interviews with EIA specialists, National- Ministry and Regional EIA Authorities; and third, on the content review of 105 Environmental Impact statements. The results highlight the persistence of serious problems despite the reform of the Hellenic EIA System. The data reveal a significant discrepancy between what is laid down by law and the actual practice. Although Law 4014/2011 contains progressive and innovative elements (such as, adopting a life cycle approach to the EIA process, mandating the development and use of a central Electronic Environmental Registry (e-ER) to manage and publish results of the EIA process), the recorded failure to implement them in practice results in a non-transparent and ineffective EIA system. Recommendations for improvement are proposed as well as areas for further research.

Keywords: EIA System Effectiveness, Greek EIA system, e-Environmental Registry, environmental information.

23 **1. Introduction**

24 The deep economic crisis from which Greece has not been able to recover yet, apart from the economic
25 and social consequences, impacted negatively on the country's environmental performance (WWF,
26 2016). In 2010, apart from austerity measures imposed by the Memoranda of Understanding (MoU), the
27 troika, attempted to introduce institutional changes aimed at improving the efficiency of the Greek state.
28 One such change, included in the first MoU, was the requirement to streamline the Greek Environmental
29 Impact Assessment (EIA) process.

30 In 2011 the Hellenic EIA system was reformed through framework law 4014/2011.

31 The priority given to EIA's reform reflects the ineffectiveness of the licensing procedure and the
32 obstacles it posed to investment projects. Lack of transparency and public participation, poor quality EIA
33 reports, absence of post development monitoring, including unjustifiable delays in the licensing process
34 had been extensively criticized in the Greek EIA process (Cashmore et al., 2002; Androulidakis and
35 Karakassis, 2006; ENVECO SA, 2011). Troika's intervention should not come as a surprise since
36 international literature highlights that political and economic factors have become a driving force in the
37 streamlining of EIA systems (Morgan, 2012). However, considerable attention is needed to evaluate
38 whether the overall effectiveness of the EIA systems is not being eroded even further through these
39 streamlining attempts (Gibson, 2012, Bond et al, 2014, Hansen & Wood, 2016, Fonseca et al, 2017,
40 Veronez & Montano, 2015). As streamlining appears to be a trend of the last decade, Pope et al., (2013)
41 urge for substantive studies to be conducted to evaluate whether goals of increased effectiveness/
42 efficiency are actually being achieved (Gibson, 2012). Here in, are presented the results of the first
43 comprehensive, national, multi-stakeholder evaluation of the reformed Greek EIA system. In what
44 follows, the Greek EIA system's is presented and its effectiveness evaluated, identifying key elements of
45 innovation as well as its weaknesses, concluding with recommendations for improvement as well as
46 lessons learned and questions for further research.

47

48 1.1 EIA system effectiveness evaluation

49 In order to inform the methodological platform on which this research is based on an extensive literature
50 review was conducted on Impact Assessment process effectiveness as well as on methodologies used to
51 evaluate country EIA systems. There are numerous definitions of effectiveness (Cashmore et al., 2004)
52 which are predominantly based on Sadler (1996) (Morgan, 2012). Herein, we adopt Chanchipricha &
53 Bond, (2013) definition whereby;

54 *'effectiveness' of an impact assessment process can be defined as 'the extent to which: it works*
55 *(procedurally); its findings contribute to decision-making of project/programme/plan/policy*
56 *development, and gain the acceptance and satisfaction of key stakeholders, on the basis of*
57 *resources used (transactively); it achieves its intended aims (substantively); stakeholders can*
58 *learn, improve their knowledge, and change their views (normatively), when the impact*
59 *assessment tool/or process is implemented' (pg 67).*

60 Managing to define and evaluate all these dimensions is no mean feat and in their comprehensive review
61 study Loomis & Dziedzic, (2018) did not identify one EIA systems evaluation framework which managed
62 to incorporate this plurality, highlighting the need for more multi-dimensional studies.

63 Morgan, 2012 and Loomis & Dziedzic, (2018) review findings off EIA systems effectiveness
64 methodologies, indicate that Wood's (2003) criteria continue to be the most frequently used method.
65 Wood's methodology mainly focuses on procedural effectiveness evaluation, which in the context of
66 evaluating a country EIA system recently undergone procedural reform appears pertinent (Veronez &
67 Montano, 2015). Evaluating whether the reformed EIA system according to the troikas criteria would
68 require the evaluation of transactive effectiveness (partially incorporated in Wood 2003), such as cost
69 and time efficiency (Pope et al, 2013). However, the weaknesses of the Wood methodology in addressing
70 substantive dimension of effectiveness needs to be recognized (Cashmore et al, 2004,Loomis &
71 Dziedzic,2018).

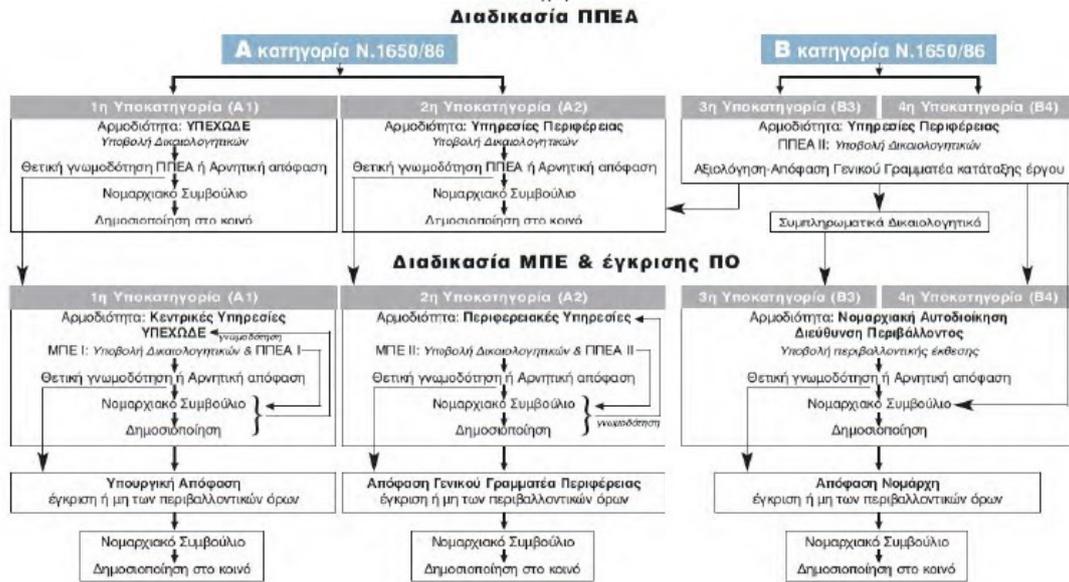
72 A major element of the Hellenic EIA system reform as described below (Section 1.2) is based on the
73 introduction of e-governance for the procedural, communication and information management. A
74 review of the academic literature however, indicates that this is an innovative approach with only limited
75 documented similar evidence in Tailand, (Suwanteep, 2016) Hong Kong and Canada (Sinclair et al, 2017).
76 This noted hesitance of e-governance integration in EIA processes globally, despite the many potential
77 arguable improvements to the effectiveness of the process (Goundar, 2013, Nica, 2015) particularly in
78 limiting corruption, improving transparency and openness of public governance processes (Krishnan, et
79 al., 2013), highlight the international pertinence of the lessons learned from the Greek EIA
80 reformexperience.

81 1.2 EIA in Greece

82 Greece has been consistently late in adopting EU environmental Directives, with EIA officially
83 implemented for the first time in 1990, (Common Ministerial Decision 69269/5387/90 enacting Law
84 1650/1986 on the protection of the environment). Despite joining the EIA community late, the
85 1650/1986 EIA system failed to integrate best practice, and was criticized for being highly bureaucratic,
86 lengthy, with limited scope for public participation and ultimately environmental protection (WWF,
87 2009, 2010). Androulidakis and Karakassis, (2006) as well as Cashmore et al, (2002) have reviewed the
88 1650/1986 EIA system. However, key elements are presented herein, facilitating the juxtaposition with
89 the reformed EIA system. In Greece Environmental Impact Statements (EIS) are prepared and paid for by
90 the developer, and the country was and still is the champion for the greatest number of EIAs per citizen
91 (GHK, 2010; YPEKA, 2014). In the 1650/1986 EIA system there were 4 categories of projects and EIS
92 reports (see Figure 1a), and EIA was a linear process starting with a mix threshold and case by case
93 screening process, mandatory scoping phase, EIS review, stakeholder consultation which ended with
94 decision making and issuing of Decision of Environmental Conditions and Terms (DETC). DETC is an
95 official decision broadly outlining the obligations of the developer regarding environmental performance
96 and in some cases mitigation measures. It is important to note that due to the past separate nature of
97 the EIA from other planning decision making process and the responsibility of the developer to conduct
98 screening, even today some projects can be found which never did EIA or obtained DETC and yet are fully

99 operational.

Σχήμα 4.3.1-1: Σχηματική παρουσίαση της διαδικασίας περιβαλλοντικής αδειοδότησης για τα έργα των τεσσάρων υποκατηγοριών



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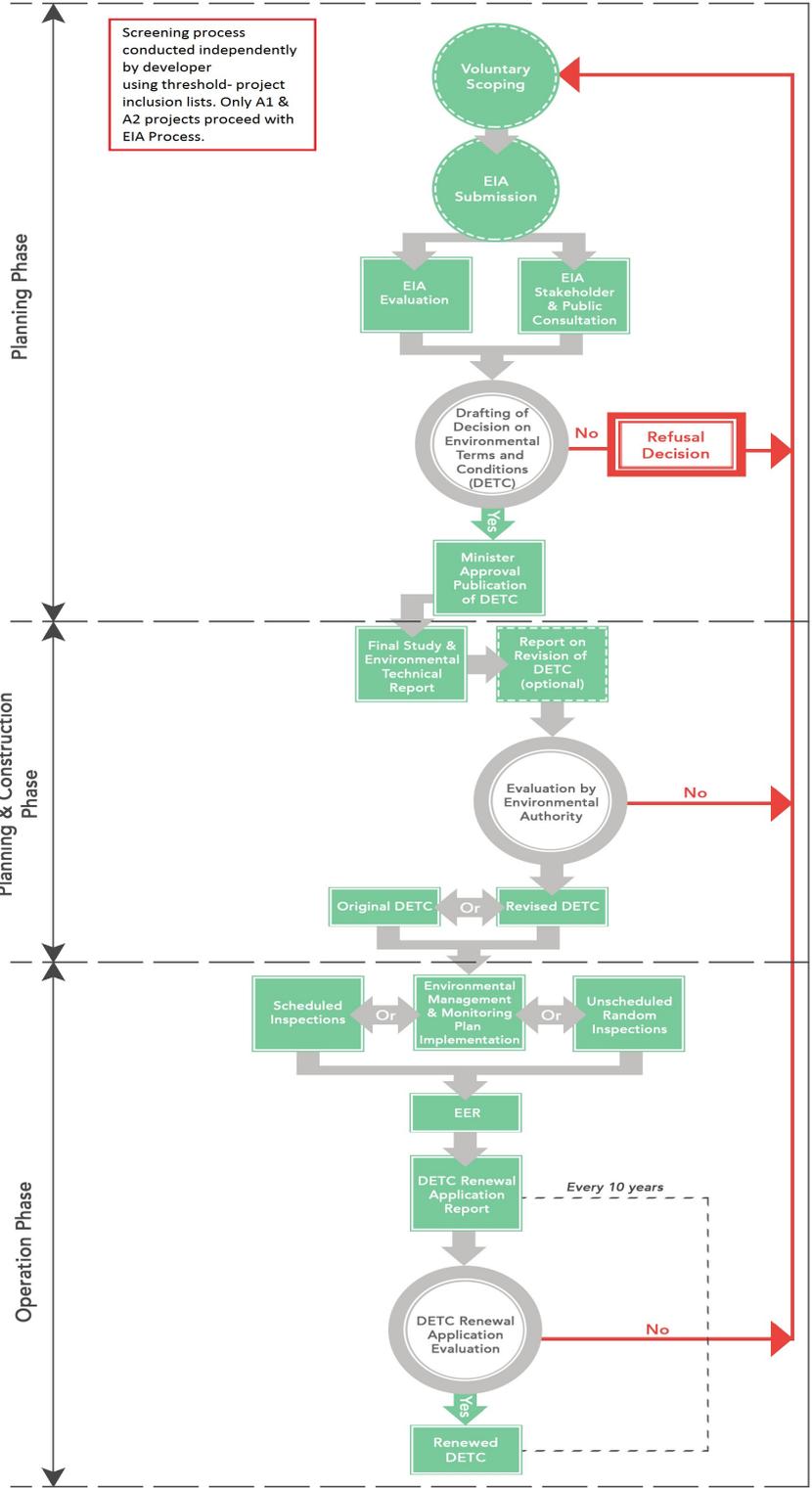
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Figure1: Research design

102 Despite a laggardness in adoption of the EIA Directive, the country, in 2010 with the pressure from troika
103 was very swift in streamlining the EIA system in a little over 6 months replaced law 1650/1986 with
104 "streamlined" framework law 4014/2011! It is important to note that this law 4014/2011 had over 20
105 ministerial decisions and Presidential decrees which would have to be drafted, put to consultation and
106 adopted before the law could actually become fully operational, something which even 7 years later still
107 hasn't happened.

108 Nevertheless in the new EIA system (Figure 1b), the screening process is conducted utilizing only
109 thresholds/ project lists, dividing projects into 12 groups based on their physical/operational
110 characteristics and 3 categories according to their size; the receiving environment is not taken into
111 account. Category A1 projects are generally larger in size, their EIA processed by National Authorities and
112 the license is granted by the Environment Minister, by Ministerial Decision! Category A2 projects are
113 smaller in size and are licensed by Regional Authorities. Category B includes smaller projects, such as
114 scrap yards and gas stations, not subject to EIA processes but which have to comply with Standard
115 Environmental Terms and Conditions (Annex III) (Banias et al, 2017). In case a category B development
116 falls within the boundaries of a natural protected area, it is obliged to compile an ecological study.

117 The reformed EIA system adopts a project life cycle approach (Zhang et al., 2013), with the EIA Decision
118 functioning as a form of environmental license, namely the DETC which needs to be renewed every 10
119 years and which can be extended another 4 years if a project is accredited with EMAS. A specific process
120 is foreseen for the renewal, which may or may not require the resubmission of an EIA depending on the
121 'judgment' of the Environmental Authority. Should a project plan for an expansion, it needs to apply for
122 a EIA Revision of DETC which again may or may not necessarily require the revision of the EIA or a new



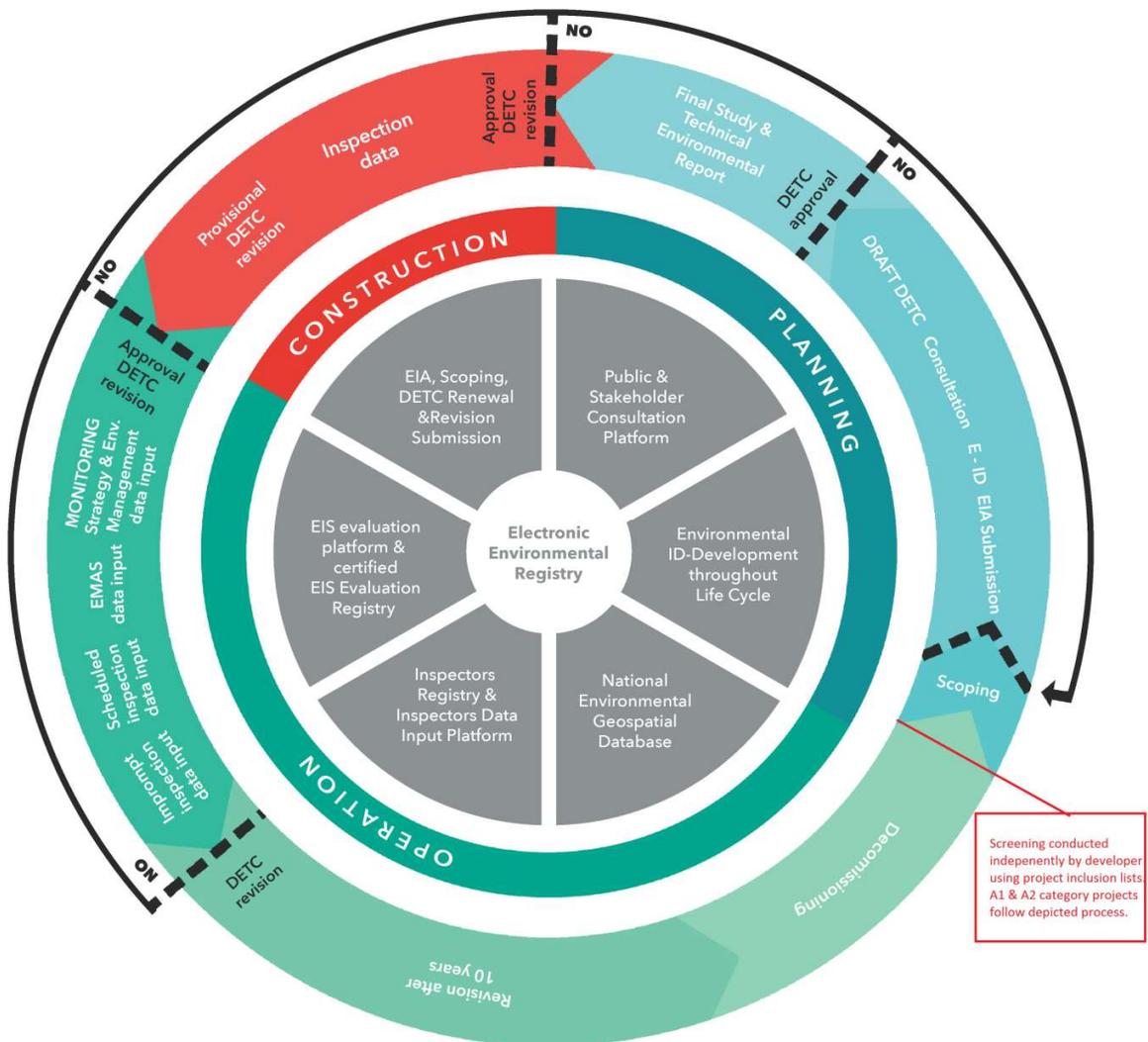
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Figure 2: The Greek EIA and Environmental Licensing process

125 EIA, depending on the 'judgment' of the environmental authority. In essence, the reformed EIA System
 126 includes a non-mandatory scoping phase followed by the initial EIS Report submission, evaluation and
 127 consultation phase which leads to the issuing of the DETC for A1 and A2 category projects, which then
 128 can be supplemented by the optional final study, the DETC Revision process and the DETC Renewal
 129 process (Figures 1b, 2).

130 Prior to Law 4014/2011, the entire process was paper-based and the only public consultation foreseen
 131 was during the EIA evaluation phase where the EIS was accessible at the Environmental Authority
 132 premises. The DETC were criticized for being too generic, not specifying adequate environmental
 133 protection measures (ENVECO, 2011). Often for large projects the DETC, issued by Ministerial Decision,
 134 even made provisions for mitigation plan approval, post development approval and technical design
 135 submission, without however providing any further opportunity for public consultation.



136

137 **Figure 3:** e-ER functionality, e-ID and EIA project life cycle as proposed in Hellenic Republic 2011a.

138 In order to overcome this significant barrier, an innovative approach was adopted utilizing e-governance
139 tools (Suwanteep et al., 2016) and open data, as proposed by peripheral to EIA EC policy, such as
140 European Commission (2011) and (2008). Law 4014/2011, stipulated the creation and implementation of
141 a unique National Electronic Environmental Registry (e-ER) which would be used to manage and publish
142 every EIA process electronically for all project categories (Tsiavos et al., 2011). It also requires the use of
143 the e-ER for data entry arising from scheduled and impromptu inspections by the Environmental
144 Inspectorate as well as for the submission of monitoring data as individually specified in each DETC
145 (Figure 2). According to Law 4014/2011, every process in the EIA system would have to be conducted
146 electronically using the e-ER, and data would have to be publicly available for viewing and downloading.
147 The e-ER should provide for: a) Remote online scoping, EIS and other reports' submission by the
148 developer, b) Automated EIA report completeness check, b) Environmental ID creation, c) Online
149 structured checklist for EIS review, d) Online, external evaluators registry (automated and random
150 selection, e) Stakeholder consultation, f) Public consultation, g) DETC publishing, h) Inspection data
151 entry, i) Environmental management plan, monitoring data and scheduled inspection data entry, k)
152 Online EIA fees payment.

153 The e-ER is truly radical and innovative in its approach as it creates, for each submitted project
154 application, a unique Environmental Identification Number (e-ID) (Hellenic Republic, 2011), which
155 follows the project throughout its life cycle from planning permission to decommissioning phase (Zhang
156 et al., 2013). Furthermore, it simplifies the connection to other public electronic systems, enabling for
157 example the direct payment of fines for potential DETC breaches.

158 Since the e-ER is legislated to function as a unique national system where information on all projects -
159 including their georeference - is stored, the system enables the automatic creation of an unprecedented
160 national geodatabase which can be used for the purposes of SEIS (EC,2008) and INSPIRE (EC,2007) as
161 well as spatial planning and cumulative impact assessment. In fact, the Law makes an explicit provision
162 for the interoperability of the e-ER and the National INSIRE Geoportal.

163 Other reforms of Law 4014/2011 include the adoption of an approach which aims at reducing the
164 administrative burden prior to EIA approval, making the scoping process voluntary and strengthening the
165 post-EIA-approval inspection process. The latter is achieved by requiring mandatory, scheduled and
166 impromptu, inspections conducted by a newly established inspectors' body. These inspectors will be
167 privately accredited since the public sector is unable to hire new staff during the economic crisis (YPEKA,
168 2014), but they will be paid directly by the government to avoid corruption. In order to cover these and
169 other related costs, the Law makes provision for the creation of a specific fund, to which applicants will
170 directly pay a fee for the processing of the EIA (Hellenic Republic, 2011a).

171

172 **2. Research Design**

173 The research design used to evaluate the reformed Hellenic EIA system as laid out in Law 4014/2011 was
174 multidimensional (Loomis & Dziedzic, 2018) and employed a variety of methods, enhancing the
175 robustness of the findings (Creswell, 2006). First, a comparative analysis of legislative compliance
176 between Directive 2014/52/EU (European Commission, 2014) and law 4014/2011 was conducted. Even
177 though the Greek EIA reform took place, prior to the Directive revision, it was considered important to
178 have data with regard to whether there are any legal issues/ omissions which need to be addressed and
179 thus accepting inherently the new EU Directive as a minimum acceptable standard. Methodologically,

180 apart from a lengthy analysis of all the enacting ministerial decisions (Annex I), additional analysis of
 181 NGO and Ministry reports was carried out obtaining quantitative data on implementation, such as the
 182 overall number of new EIA projects and the duration of licensing procedure.

183 Secondly the research evaluates the 4014/2011 law implementation. These two evaluations could yield
 184 different results, since, as Rose (2011) and Louka (2004) emphasize, even a comprehensive legislation
 185 can be poorly implemented. For the implementation evaluation, a number of different methods were
 186 used including the review of 105 Environmental Impact Statements (EIS) using Glasson's et al (2005) EIS
 187 review checklist, as well as the evaluation of the Greek EIA System's effectiveness, based on Wood's
 188 (2003) criteria (Figure 3). As reviewed in Section 1.1 there are a range of EIA system effectiveness
 189 evaluation methodologies. Woods (2003) criteria were selected due to their wide application in different
 190 countries, as well as due the structured nature of proposed criteria themselves enabling both procedural
 191 and transactive effectiveness evaluation (Chanchipricha & Bond, 2013).



192
 193 **Figure 4:** Structure and potential functionality of the proposed Greek EIA Database of
 194 georeferenced e-ID data.

195 The sample of the 105 EISs reviewed were all issued and approved post reform 74% of which between
 196 2014 -2015. They consist of the official reports submitted prior to the issuing of the DECT, 77.1 % of
 197 which were private projects and 22.9% public. The sample included EISs from 11 out of 12 project
 198 categories and covered 6 out of 7 geographic regions. Specifically no EIS could be obtained despite
 199 authors efforts from Group 7 (bird and livestock facilities) and the Ipiros and Western Macedonia
 200 Region. 84% of the EISs examined concerned projects of category A2 while 16% projects and activities of
 201 category A1. For the review were used all criteria listed in Appendix 4 and the Manchester University's
 202 grading system as presented in Glasson et al 2005. At the first stage, a small sub-sample of 15 EIAs were
 203 reviewed independently –using a double-blind approach-- by all four authors. The authors then
 204 compared their results and agreed on the assignment of grades. Subsequently, one of the authors
 205 assigned grades to all 105 EIAs, according to the agreed principles. Finally, a random sub-sample of 48
 206 EIAs was selected and 16 EIAs were graded by each of the other three authors, using again a double-
 207 blind approach. Comparison of grades yielded a 95% correspondence in values, indicating the
 208 minimization of the review's subjectivity.

209 A Panhellenic anonymous internet survey was conducted to inquire about the overall national system's
 210 effectiveness and implementation, obtaining a sample of 125 respondents. The questionnaire is
 211 analytically presented at Annex I. The rationale behind the questionnaire design was to try and record
 212 perceptions regarding the systems implementation effectiveness using both open ended and closed
 213 questions. For the closed questions, as effectiveness indicators were used the official national
 214 declarations regarding what the law reform supposedly did, described in (Hellenic Republic, 2011a),
 215 which at the same time was relevant to many of the criteria in Wood (2003). An effort was made to form
 216 a balanced sample with representatives from all major stakeholder groups. The sample consisted of EIA
 217 government stakeholders (46%), such as officials of the Environment Ministry and of Regional EIA
 218 departments; EIA private sector specialists (35%); and "other" (17%), such as specialized lawyers and
 219 Non-Governmental Organization representatives. Survey results were analyzed using descriptive statistics
 220 (Creswell, 2006) and content analyses for open ended questions (Sarantakos, 1993). Following Loomis
 221 and Dziedzic (2018) suggestion for multidimensional analysis, 28 in depth consultations were carried out
 222 with Greek EIA experts such as officials from the Ministry (Figure 3). The information attained enabled
 223 the authors to draw the links between the different findings of this multidimensional research, and
 224 interpret more holistically the divide between legislative requirements and implementation practice.

225

226 3. EIA System Effectiveness Evaluation Results

227 This Chapter presents the results of the multidimensional evaluation of the EIA system's
 228 effectiveness, utilizing the established methodological criteria proposed in Wood (2003) (Column 1, Table
 229 1). Following Haydar and Padiaditi (2010), the evaluation is based on two elements: the results of the
 230 comparison of the reformed system to the EIA Directive (Column 2, Table 1) and the evaluation of Law's
 231 implementation in practice (Column 3, Table 1). The latter combines the results of the national survey,
 232 the interviews and review of EIA statements and review of official documentation.

233 **Table 1:** Summarized Results of the Greek EIA System Effectiveness evaluation conducted in 2016-2017.

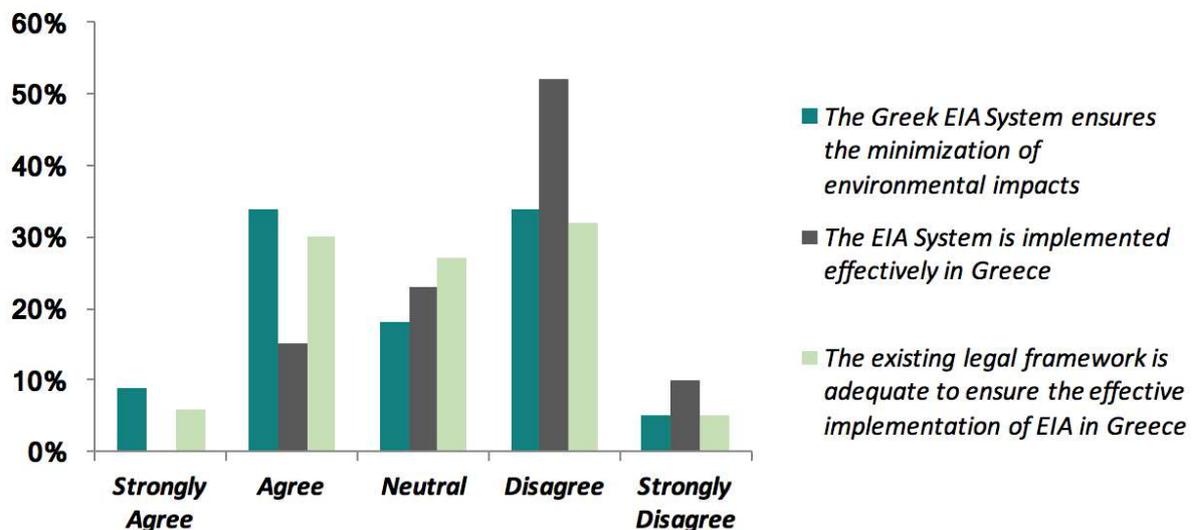
Evaluation criteria (Wood, 2003; Haydar & Padiaditi, 2010)	The Greek EIA System (based on law 4014/2011 & juxtaposed with	The Greek EIA System (as implemented in practice - according to research results)
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		<i>Directive 2014/52/EU</i>	<i>I=interviews, S=survey, R=EIS Quality Review results, D=documentation review</i>
Criterion 1	Is the EIA System based on a clear and specific legal provision?	Yes - Framework law 4014/2011 Legislative complication due to plethora of Presidential decrees and Ministerial decisions associated- required for the enactment of the law	Legislative delay in the issuing of enacting ministerial decisions and presidential decrees. (D, I) e-ER not implemented, (D, I) EIA reviewers & external inspectors system not in place (D, I)
Criterion 2	Must the relevant environmental impacts of all significant actions be assessed?	Yes Assessment of environmental and socio-economic impacts of proposed projects Issue: Technical Environmental Assessment, including assessment of mitigation measure impacts is deferred to-optional post EIA approval	Poor quality assessments (R, I, S) EIS Theoretical – lacking evidence (R, I, S) lack of field studies –site investigations (R, I) impacts of mitigation measures not assessed (R)
Criterion 3	Must evidence of the consideration, by the proponent of the environmental impacts of reasonable alternative actions for environmental significance take place?	Yes (including ‘do nothing’ scenario)	In practice this is rarely done, and where so very poorly (R)
Criterion 4	Must screening of actions for environmental significance take place?	Yes Threshold/ project inclusion lists screening method Exclusion of military projects	Thresholds in Greece are much lower than Directive requirements resulting in numerous projects requiring EIA (D, I) Receiving environment characteristics not taken into consideration for screening. (D, I, S)
Criterion 5	Must scoping of the environmental impacts of actions take place and specific guidelines be produced?	Provisional scoping procedure foreseen Specific “scoping report guidelines” available per project category (MD 1958/2012)	Scoping used to be mandatory resulting in average delays of 9 months to obtain a scoping decision Now it is voluntary and rarely practiced (D, I)
Criterion 6	Must EIA reports meet prescribed content requirements	Yes Art 11. Law 4014/2011 and MD 15/4187/266/11.04.2012 EIA report content templates MD 1958/2012 on EIA content checklist External EIA reviewers provision	Quality review of a sample of 105 EIS indicated that 42.8% failed to meet minimum EIA Directive requirements. (R) External EIA reviewers’ provisions not implemented (D, I, S) No training or guidance provided to environmental authorities (I, S)
Criterion 7	Must EIA reports be publicly reviewed and the proponent respond to the points raised?	EIShave to be made publically available including statutory consultations Art 18 & 19 Conflicting executive Ministerial decision EIS report hard copy available at regional committees with limited access to statutory consultations No provision for proponent to respond to consultations	Electronic portal for accessing EIS not activated (I, S) Public consultation is limited and doesn’t have to be taken into account (I, S) Statutory consultations and opinions can be and often are ignored by authorising authority.(I, S) Environmental Permit Decision publication on the internet (Art 19a) (D)
Criterion 8	Must the findings of the EIA report and the review be a central determinant of the decision of the action?	Yes EIA decision prerequisite of construction permit However, operation licences eg for wind farms are provided in advance of EIA permit.	EIA is considered as a long “administrative procedure” to overcome. (I, S) Even to date there are old actions-projects in operation without approved environmental terms (I)
Criterion 9	Must monitoring of action impacts be undertaken and is it linked to the earlier stages of the EIA process?	Yes Extensive mandatory monitoring & inspection provisions Conflicting MD48963 issued post reform making monitoring non-mandatory	No evidence of monitoring practice (R, I) Majority of inspection provisions not enforced (D, I, S) Private Inspectors Provisions inactive(D, I, S)
Criterion 10	Must the mitigation of action impacts be considered at the various stages of the EIA process?	Yes Mitigation provisions stipulated in Approved Environmental Terms Decision Legislative conflicting provisions with Habitats directive regarding acceptance of compensation measures for impacts in protected areas for “social and financial” reasons:	Only generic reference to mitigation measures (R, I) Detailed technical measures often prescribed in technical study, or not at all – post EIA approval (I)

Criterion 11	Must consultation and participation take place prior to and following, EIA report publication?	Statutory consultation conducted: (a) During voluntary scoping phase, (b) Following EIA report publication – written opinion forms. Public consultation: (a) Following EIA report publication – written opinion forms MD 1649/45/2014	Statutory consultation –very problematic: (a) Multitude of authorities consulted, but consultations not widely available and can be ignored by responsible authority,(D,I) (b) No two-way communication,(S,I) (c) Lengthy delays,(I) (d) EIA approval is a political decision,(D, S, I) Public consultation: (a) Results can be ignored – proponent doesn't need to respond to consultations,(D, I) (b) Access to EIS difficult, (D,I) (c) Local – regional committee meetings- political (I)
Criterion 12	Must the EIA System be monitored and if necessary be amended to incorporate feedback from experience?	No There is a need to revise law 4014/2011 to ensure formal conformance with Art 12 of EIA directive.	A review was conducted in 2010, prior to EIA law revision.(D) Should the e-ER operate, this monitoring can be automated.
Criterion 13	Are the financial costs and time requirements of the EIA system acceptable to those involved and are they believed to be outweighed by discernible environmental benefits?	Theoretical time requirements. Provisions to cover administrative and inspections cost.	Theoretical time requirements surpassed (I) Delays continue despite legal reform due to lack of e-ER operation (I) Financial Cost of EIA report preparation is relatively small (S, I) Authorities claim there is not enough time-expertise to conduct evaluations assessments (S, I) Lack of expertise of consultants conducting EIA (I) Funding for EIA is too limited in order to conduct an effective assessment (I)

234

235 Overall, the multidimensional analysis clearly stresses that the reformed system's implementation has
 236 been fraught with problems. As Figure 5 illustrates, less than half of web-survey respondents and none
 237 of the depth interviewees consider that the reformed EIA procedure guarantees minimization of
 238 environmental impact. Less than one out of six web-survey respondents and none of the interviewees
 239 agreed with the assertion: "The EIA system is being implemented effectively in Greece".



240

241 **Figure 5:** Survey respondents' perceptions regarding the improvement of EIA System Effectiveness.

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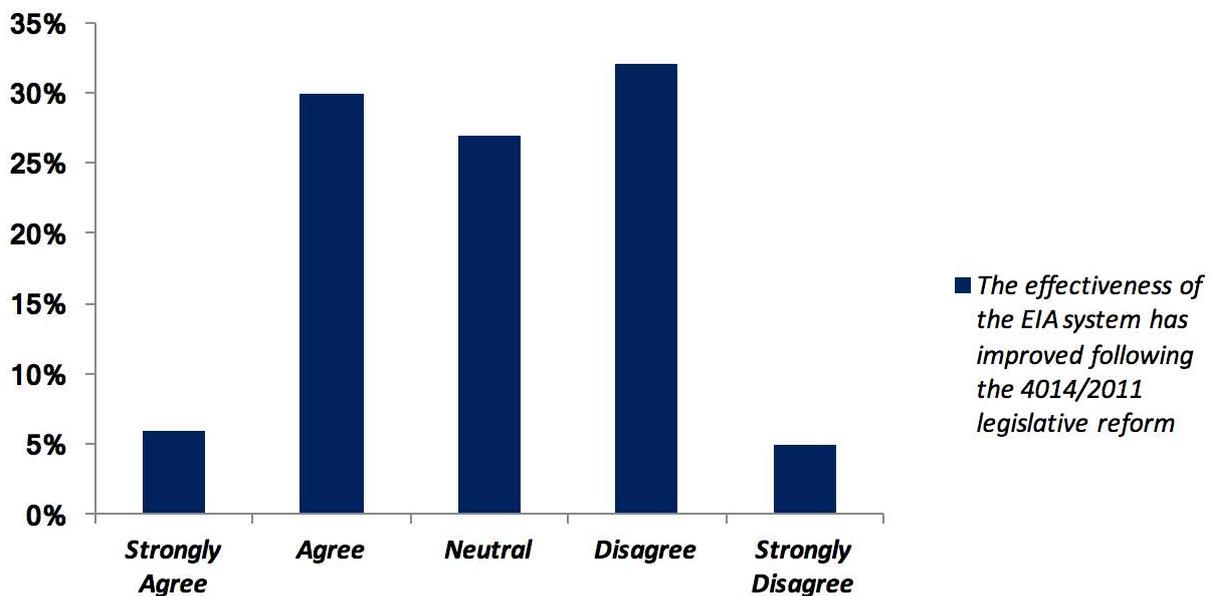
243 3.1 Greek EIA Legal system effectiveness(Criterion 1)

244 The authors' review of the legislation and its juxtaposition with the EIA Directive 2014/52/EU indicates
 245 that Criterion 1 is mostly fulfilled (Table 1).Law 4014/2011transposes in its entirety all the provisions of
 246 the revised Directive 2014/52/EU, barArt12 provisions for EIA System review. However, a number of the

247 Law's key provisions have not yet been enacted, since their legislative implementation requires
248 Ministerial Decisions (MD). In fact, when questioned whether the current legislative framework is
249 sufficient to enable the effective EIA implementation in Greece, only 37% of survey respondents agreed
250 (Figure 5).

251 In addition, while the required MDs are delayed, miscellaneous "non-prescribed by Law4014/2011" MDs
252 are issued, clearly undermining the Law's essence and spirit. Such an example is the Joint MD
253 167563/ΕΥΠΕ "on the renewal of DETC without the need to follow the provisions of 4014/2011", issued
254 as a "temporary" measure, in the absence of the e-ER. However, it clearly conflicts with Law's key
255 provisions resulting in the creation of parallel, non-transparent procedures whose conformance with the
256 Directive's provisions is debatable. Most worryingly, the content analysis of MD's presented in Annex
257 II indicates a departure from Law's original spirit, emphasizing the need for minor but important revisions
258 to most of the subsequently issued MD. For example, although the Law abolishes the concept of the EIS
259 as a paper document, requiring that the entire environmental licensing process is a continuous e-ER, on-
260 line and georeferenced, subsequent MDs revert to referring to paper documents and the obligation of
261 developers to provide numerous paper copies of EIA "folders", impeding the future operation of the e-
262 ER.

263 It is evident from the above that key elements of the legal reform remain still dormant, such as the e-ER,
264 the e-ID and the Environmental Inspectors' Agency. This predicament could explain the division of
265 responses in the web-survey's question of whether the effectiveness of the EIA system had improved
266 following the legislative reform (Figure 6).



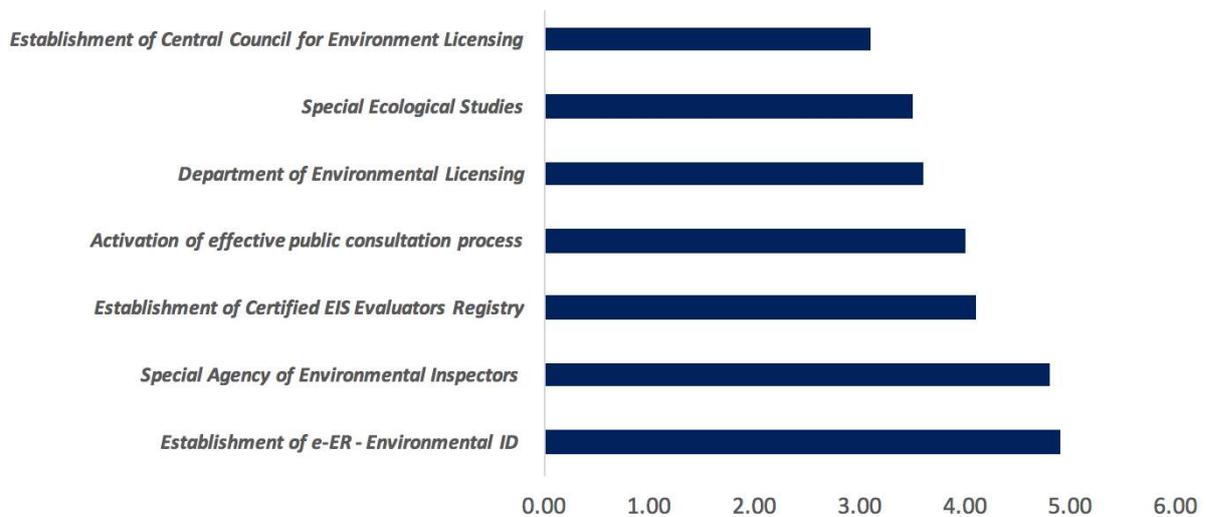
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Figure 6: Greek EIA System following the 4014/2011 legislative reform.

269
270 Figure 7, illustrates the most important components of EIA reform with regard to improving its
271 effectiveness. Undoubtedly, the key to implementing Law 4014/2011 effectively is the operationalization
272 of the e-ER which, according to Art 18, should have been in operation by 2012. Disturbingly, although the

273 electronic system has been developed, installed and paid for since 2014, it is not in operation yet. It
 274 should be noticed that a ministry officer interviewed stated *“the problem with Law 4014/2011 is that it is
 275 too clear, too open and transparent meaning that the ministry administration will never implement it,
 276 proof is the example with the e-ER. The system has been installed in the Ministry since 2014 and yet they
 277 refuse to launch it and they never will, unless there is a higher pressure to do so”*.

278 Respondents find almost equally crucial the development of a “Special Agency of Environmental
 279 Inspectors”. Furthermore, the “Establishment of Certified EIS Evaluators Registry” and the “Activation of
 280 effective public consultation process” have been ranked among the most important components, which
 281 in 2017 had yet to be implemented.



282 **Figure 7:** Relative Ranking scores regarding perceptions of the most important components of
 283 EIA reform which hold potential to improve its effectiveness.
 284

285
 286 **3.2 Breadth and depth of EIA system (Criterion 2)**

287 With respect to Criterion 2, it should be noted that the Law contains provisions allowing the consideration
 288 of all environmental and even socioeconomic effects of any given project. Standard EIA templates issued
 289 with MD15/4187/266/11.04.2012 enable this to be undertaken in a systematic and inclusive manner.
 290 However, two of the key weaknesses highlighted both in the interviews and the survey’s open ended
 291 question (mainly by NGOs), are the tendency for salami-slicing of projects, and the inadequate evaluation
 292 of projects secondary actions’ impacts, a phenomenon present in many countries (Enriquez-de
 293 Salamanca, 2016).

294 Currently a lot of key information is left out regarding a project’s mitigation measures and their
 295 impacts, as these are specified in the optional technical report which, as mentioned above (Figures 2, 3),
 296 is submitted post EIA and DETC’s approval. The evaluation of these reports consists of a process with
 297 limited (if any) stakeholder consultation and no public participation (MD 15277/23.03.2012) as is post
 298 EIA Decision and thus not bound by Directive 2014/52/EU public participation requirements. As
 299 mentioned in 3 NGO’s interviews, this leaves scope for corruption resulting eventually in environmental
 300 degradation. An indicative quote of a national NGO is *“now they just leave all the dirty details, which are*

301 *not even details, like for example the precise location of earthworks, plan lay outs, the technologies to be*
302 *used... for the technical report where it is too late”.*

303 **3.3 Screening (Criterion 4)**

304 The Law establishes an exclusive detailed threshold-projects list based screening procedure in
305 juxtaposition to the previous mix lists and case by case procedure (Pinho et al., 2012) (Annex II).
306 Screening is thus entirely based on the characteristics of the proposed project, yet does not take into
307 account the characteristics, vulnerability/significance, of the receiving environment. Should projects fall
308 within a Natura 2000 area, their category may change or for B category projects and ecological impact
309 assessment may be requested. However, it remains the developers responsibility to screen the project
310 and justify the selection of category, although, environment authorities can review the screening
311 decisions and propose an alternative classification. Projects are classified into 12 groups, with analytical
312 thresholds prescribed as well as guidance relevant to each group regarding the specifications/contents of
313 the EIS (MD15/4187/266/11.04, Annex II). A comparison with Directive 2014/52/EU (Annex I, II), found no
314 omissions. In fact, thresholds in Greece are much lower than the Directive’s requirements.

315 An inconsistency identified, is the exclusion of “All” Military projects, which includes vacation
316 accommodation facilities for military families and other projects not related exclusively to defense
317 purposes as stated in the Directive. This is not unique to the Greek screening procedure and has been
318 noted in other countries like Syria (Haydar and Padiaditi, 2010).

319 **3.4 Scoping (Criterion 5)**

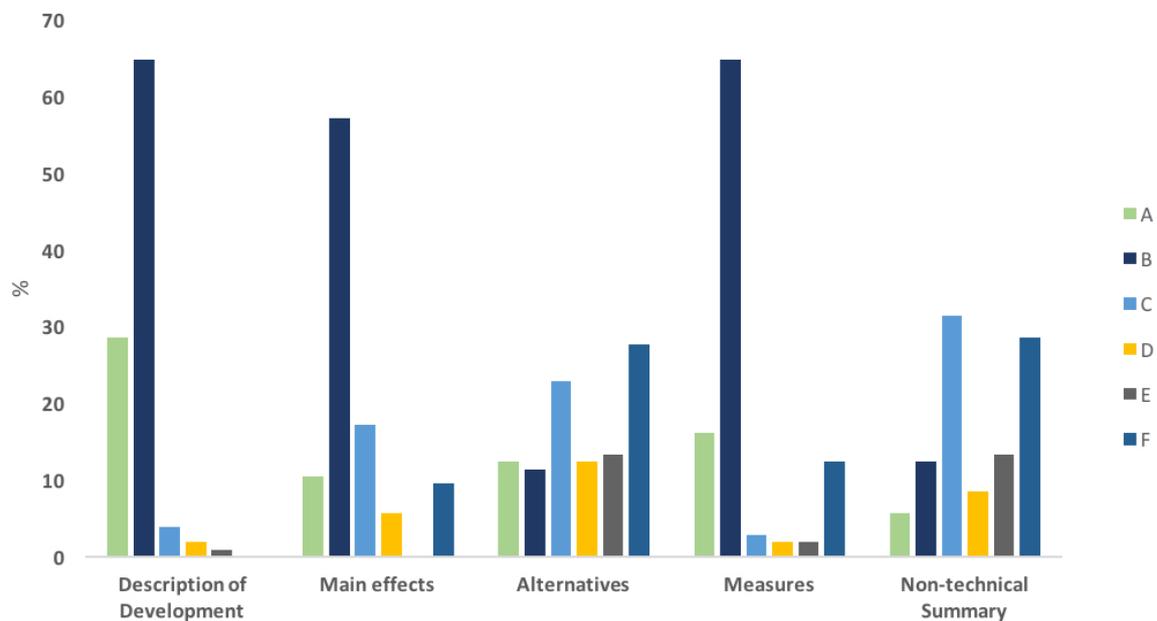
320 Prior to the EIA reform, scoping in Greece was mandatory for all A category projects. However, scoping
321 as a procedure was treated more as a submission of the entire EIS for a preliminary evaluation, which
322 often took up to a year, rather than the submission of key information helping to establish the key
323 impacts which the project should address, as proposed by (Weston, 2000). The EIA reform made the
324 process voluntary which significantly reduced the number of projects undergoing scoping (YPEKA, 2014).
325 However, the review of the new scoping report’s contents specifications (MD1958/2012) indicates that
326 the extensive reporting nature of scoping didn’t change, as the template guidelines of the scoping report
327 continue to be very detailed. Interviewed NGO’s commented on the detrimental effect this streamlining
328 reform has had on the capacity for effective public participation or ‘environmental lobbying’ in line with
329 Hansen & Woods’ (2016) findings. *“We used to rely on the scoping phase to be alerted to proposals and*
330 *have enough time to prepare our responses and our strategy to oppose them... now especially in the*
331 *absence of the e-ER, we find out about the projects when its too late to take action”* (National NGO).

332 **3.5 Quality of EIA reports / Preparation and quality review (Criteria 6, 7)**

333 The poor quality of both Greek EIA reports and DETCs has long been stressed as an issue
334 (Androulidakis & Karakassis, 2006; ENVECO, 2010). Law 4014/2010 attempted to address these issues
335 mainly by restructuring/systematizing the e-reporting system and e-publicizing the EIA evaluation results
336 using the e-ER, theoretically reducing the scope for errors and corruption (Krishnan et al., 2013).
337 Indicatively, there are provisions for: a) EIS automated completeness check by e-ER, b) Scoping report,
338 EIS, technical report, EIA revision, EIA modification templates, tailored to project type, c) Use of EIS
339 certified external evaluators randomly- anonymously selected by e-ER, which would use standardized
340 evaluation checklists, d) Specified evaluation and consultation periods.

341 Presently, as there is no e-ER and no EIS external evaluators;EIS evaluation and completeness check is
 342 still being conducted by Environmental Authority officers, very much in the same manner as prior to the
 343 legislative reform.Interview and survey results indicate that problems of delays and approvals of poor
 344 quality EISs persist, despite the changes in legislation. “...each time you go to the authority they mention
 345 another paper which is missing!”(EIA consultant).

346 The evaluation of 105 EIA statements demonstrates overall poor quality. When accounting for all 92
 347 Glassons et al. (2007)’s criteria, the cumulative frequency of grades A, B and C is just 59,8% with grade B
 348 having the highest frequency at 36,8% followed by grade F at 33.5%. Therefore, considering “..the
 349 pass/fail mark lying between grades “C” and “D”..”(p. 415, Glassons et al., (2007)), less than 60% get a
 350 passing grade. Given that not all aspects of the report have the same significance we report the
 351 cumulative frequencies of grades A, B and C (which are termed passing grades’ frequencies) for the eight
 352 categories of criteria. The highest passing grades’ frequency is observed for category Description of the
 353 Environment (73,2%), Organization and Presentation of Information (73,1%), Description and Evaluation
 354 of Impacts (62,9%) and Description of the Development (69%). It has to be noted however, that EIS
 355 consist of standard detailed templates which need to be completed, but do not require physical data
 356 collection or site surveys. Thus these templates for example the description of the environment is based
 357 on secondary literature, significantly reducing the robustness of the EIS.For the rest four groups of
 358 criteria the passing grades’ frequency is below 50% and more precisely, Scoping, Consultation and
 359 Impact Identification (49,6%), Alternatives (41,3%), Mitigation and Monitoring (39,3%) and Non-
 360 Technical Summary (38,4%). For the last two groups of criteria the frequency of grade F was more than
 361 50%. However, when the evaluation is conducted using solely the minimum requirements of the
 362 Directive, passing grades’ frequency reaches 72,4%.



363
 364 **Figure 8:** Relative Frequencies of EIA reports’ grades for the minimum requirements of Glasson et al.
 365 (2005) evaluation criteria (N=105).

366 Figure 8 presents grades' frequencies for all five minimum requirements of the Directive criteria.
367 Although passing grades' frequency for three criteria is very high (reaching 97,1% for Main Effects), for
368 the rest two criteria, Alternatives' Consideration and Presence of a Non-Technical Summary, the passing
369 grades' frequency is below 50%. Some clues for understanding these poor results were obtained from
370 the survey's open ended questions as well as from the interviews. Understaffing and lack of training in
371 new processes were two key reasons mentioned by authorities. A revealing comment from one regional
372 environmental officer was that *"I am alone conducting all the evaluations for the entire Prefecture and
373 my transportation costs to make site visits are not covered, so as you can understand my evaluation can
374 only be superficial – desk based at the detriment of the environment"*.

375 Both EIA consultants and Environmental authorities commented on the poor quality of EIAs and
376 attributed it, among other, to the poor expertise of those conducting the assessments as well as the lack
377 of training of those conducting the evaluations. In Greece, any university graduate which qualifies for the
378 "working title 27" (MD 138/2009), representing a wide range of disciplines including ones which have
379 nothing to do with environmental science such as electrical or electronics engineering, have the
380 authorization to conduct an EIA. This provision clearly conflicts with Directive 2014/52/EU and its specific
381 requirement for the use of competent experts both in producing EIS and with regard to authorities
382 responsible for reviewing them. This result highlights an area for improvement especially when
383 considering the important influence of practitioners in EIA quality and effectiveness in environmental
384 protection (Kagstrom & Richardson, 2015).

385 **3.6 Alternatives consideration (Criterion 3)**

386 Despite there being an explicit provision in the reformed 4014/2011 legislation for alternatives
387 consideration including the 'do nothing scenario' (Table 1); both the EIAs' review and the input from the
388 interviews confirmed that the suggestion of alternative consideration with particular regard to the
389 environmental impacts, is rarely done, and when conducted the alternatives' evaluation is very
390 superficial. The results of the review for Alternatives (both as a group of criteria and as a single minimum
391 EIA Directive criterion, reported in Figure 8) yield passing grades' frequency below 50%. Actually, the
392 authors identified that in many cases the alternatives section was entirely omitted and this explains a
393 frequency of grade F just below 50% for the group of criteria Alternatives. Weak alternatives'
394 consideration was also a finding in Barker and Wood (1999) and appears to continue to be a fragile area
395 of EIA in general (Galas et al., 2015; Haydar and Padiaditi 2010).

396 **3.7 Impact mitigation (Criterion 10)**

397 Law 4014/2011 has an explicit requirement for the description of mitigation measures, to minimize,
398 avoid, or "compensate" a project's impacts, within the EIS which are then transferred to the binding
399 DETC. The authors' analysis identified two key issues. Firstly, the EIS review highlighted a very superficial
400 presentation of mitigation measures, rarely if ever including an evaluation of the mitigation measures'
401 secondary impact, so for example the ecological impacts of landscaping or flood prevention mitigation
402 measures. Often in the DETC it was mentioned that mitigation measures would be specified following
403 the submission of the technical report which however, is post EIA approval (Figures 2, 3).

404 A second point of serious concern following the legislative analysis, has to do with the use of
405 "compensatory" mitigation measures in protected areas presenting a conflict with the Habitats Directive
406 (92/34/EEC). Theoretically, according to Law 4014/2011 one could build a large development on a

407 pristine NATURA2000 site destroying rare habitats and protected species, yet authorities have the right
408 to accept “compensation” measures for the environmental damage to the protected areas on the basis
409 of “social and financial” reasons. “...we are in economic crisis and this is being used as the excuse to
410 sacrifice all our natural heritage.” (Ministry environment authority). Additionally, it is increasingly
411 recognized (Galas et al., 2015) that mitigation approaches should adopt a more holistic approach looking
412 at larger landscape scale impacts, cumulative impacts, as well as impact mitigation regarding ecosystem
413 services and climate change. The review of Greek EIS identified no evidence of such practice.

414 **3.8 Monitoring (Criterion 9)**

415 In Law’s Art 7, Annex II, detailed monitoring requirements are laid out to be included within all EIS. This
416 article is in line with best practice recommendations regarding monitoring (Ahammed&Nixon, 2006)
417 and holds great potential considering that all this data would be available through the e-ER (Figure 2).
418 Unfortunately, none of the 105 EISs reviewed provided a monitoring program as specified by the Law.
419 This result can be explained in light of subsequent MD 48963, Annex A par 7.7, which states, in
420 contradiction to the law, that “monitoring plans are provisional”.

421 Apart from monitoring being specified in the EIS to be conducted by the project applicant/owner, the
422 Law makes additional explicit provisions for undertaking regular inspections, which vary according to the
423 project’s category as well as impromptu inspections to be undertaken by the Special Inspectorate Agency
424 (Art 20). Such provisions did not exist in the previous law and had been considered a theoretical very
425 positive improvement. However, this has not been implemented neither have the legislative measures
426 for setting up the inspectorate bodies materialized, making all the above provisions redundant. This was
427 considered to be, by interviewees and survey respondents (Figure 7), the second most important issue
428 undermining the Hellenic EIA systems effectiveness, following the absence of the e-ER.

429 **3.9 EIA Governance processes evaluation (Criterion 8)**

430 Following the legal reform, EIA is a fundamental component to obtaining planning permission in Greece.
431 However, these processes are characterized by a largely fragmented decision making structure exhibiting
432 significant overlaps among different public authorities. Additionally, integration amongst planning
433 approval process and project operation or production licenses is problematic, as licenses can be granted
434 by different authorities regardless of EIA outcome. For example, wind farm operation licenses are
435 provided in advance of an EIA permit. Nevertheless, despite there being still much work to be done, the
436 reform made a significant step in integrating various licensing procedures such as IPPC (YPEKA, 2014).

437 A key problem with the EIA decision making process is that it remains “political” and thus “by law
438 unaccountable”, as characterized by many of the respondents to the survey and interviews. The approval
439 of all A1 projects in Greece is conducted by the Minister of Environment who is “unaccountable” by law,
440 as all ministers of the Greek government and thus, they cannot be taken to court for decisions they have
441 issued during their term. Furthermore, since ministers are political representatives, “EIA approval can be
442 considered as a process favoring clientelism”, as many interviewees commented.

443 This problem is amplified considering the lack of standards, benchmarks and scientific procedures on
444 which to base EIA evaluations and facilitate decision making, opening the window for corruption.
445 Moreover, Greece lacks, in many geographical areas, land use plans, protected area management plans,
446 landscape character baseline zones or forest area boundaries (Apostolopoulou et al., 2009). Greece
447 doesn’t even have a cadaster and neither has designated-mapped its coastline (YPEKA, 2014), giving rise

448 to a plethora of “windows” for corruption and conflict in decision making (Liddle, 2009). Finally, there
449 are no official methodological guidelines for conducting impact assessments, such as, noise, landscape
450 and ecological, an issue raised by both environmental authority officers and EIA consultants in the
451 survey. The results strike accord with Bond et al (2016) findings suggesting that EIA processes should be
452 reframed to ensure optimized decision making integration, enhancing thus the legitimacy of resulting
453 decisions.

454 **3.10 Public and stakeholder consultation (Criteria 7 & 11)**

455 With respect to the public and stakeholder consultation criteria, there are disparities and even
456 contradictions between a) Law 4014/2011 and its enacting MDs’ provisions, b) legislation and
457 implementation and c) among the practice of different administrative regional authorities, a finding not
458 exclusive however to Greece (Brombal et al., 2017). As scoping is now voluntary, consultation prior to EIA
459 report’s publication is not officially required. Should the provision of Art 18 be implemented, all data on
460 the e-ER should be publicly accessible and downloadable and the authorities should obtain licenses to
461 conduct different documentation management functions within the system such as evaluations,
462 consultations, etc (Hellenic Republic 2011a).

463 However, this article was completely ignored by the contradictory and arguably ‘illegal’ enacting MD
464 3089 B’/4-12-2013, which reintroduced closed, paper based, stakeholder consultations of 45 days, and
465 limited EIS’ public access only to a hard copy located at the environmental authority’s offices.
466 Furthermore, with respect to stakeholder consultation during DETC revision and renewal, unclear
467 provisions are mentioned in MD 3089 B’/4-12-2013, while with respect to public consultation,
468 MD 167563/13 –FEK 964/B/13 explicitly states that the single hard copy of reports required to be
469 submitted at the regional council are “*only for viewing and not for consultation*”. These provisions could
470 explain the negative opinion of the survey respondents regarding the perceived effectiveness of
471 existing public consultation process and their agreement to the proposed mandatory consultation prior to
472 EIA Submission (Figure 9). These findings are in accordance with current recommendations in the
473 academic literature regarding EIA public participation (Glucker et al., 2013; Morgan, 2012).

474

475 **Figure 9 here**

476 There is a provision in Law’s Art 19a for the separate publication of the DETCs at the official web site of
477 Ministry of Environment and Energy. However, according to Art 18 the same information should be
478 made available through the e-ER. These quite confusing provisions, might explain the doubts expressed
479 by 16 out of the 28 interviewees as to whether the e-ER would ever be operationalised by the ministry’s
480 administration.

481 **3.11 Financial cost and time requirement acceptability (Criterion 13)**

482 Criterion 13 suggests that a country’s EIA system evaluates the involved stakeholders’ assessment of
483 costs (direct financial and indirect related to the length of the process) imposed by the EIA system and
484 compares them to the perceived discernible environmental benefits. The authors using documentation
485 and interview methods attempted to evaluate the transactive effectiveness of the reformed EIA
486 system.

487 Data from YPEKA (2014) reveal that prior to reform an average of 21.500 EIAs per annum were submitted,
488 by far the highest in Europe. The duration of the licensing process, from report submission to
489 DETC's issuing, was also on average much longer relative to other European countries. For example, for
490 A1 projects handled by the Ministry, the duration ranged from 20 to 42 months (ENVECO S.A, 2010),
491 compared to an EU average of 9.8 months (GHK, 2010). Following the reform, the Ministry claims to have
492 reduced the number of EIAs by 89% (YPEKA, 2014) yet fail to note how many additional post EIA decision
493 technical assessments were required. The new legislated "theoretical" duration of licensing procedures
494 is calculated at 3.6 months for A1 projects and 2.2 months for A2 projects (YPEKA, 2014), well within the
495 EU average. However, these timeframes are greatly surpassed, as pointed out by interviewees and
496 survey respondents. An informative comment made by an EIA consultant was that *"these time frames are
497 all theoretical; there were specified timeframes also in the previous law. The issue is that unless there is
498 liability or at least exposure of (who) is delaying the process, which was supposed to be a function of the
499 e-ER, there will always be delays... you see delays can be used as leverage"*.

500 The Ministry estimates the total cost of producing an EIS and managing the consultation process, at an
501 average level of €20.000 for A1 category projects and €8.000 for category A2. However, the interviews
502 with EIA consultants reveal that tariffs can be much lower for private sector projects and tend to vary
503 according to the project's type.

504 Data from the web-survey and the in-depth interviews establish that the indirect costs incurred to
505 developers from the delays and "uncertainty" in the licensing process, rather than the direct cost to
506 conduct the study, render the overall cost unacceptable. This justified the positive response of both
507 environmental authorities and EIA consultants to the proposal of paying for external anonymous
508 evaluations and inspections, securing timely decision making. Cost doesn't appear to be a barrier; on the
509 contrary, when asked to determine the main weaknesses of the EIA system, survey respondents
510 commented on the fact that the available funds do not allow for in depth studies --involving
511 multidisciplinary teams and on site data collection--which constitutes best practice (Bond et al., 2010).
512 Low cost was considered by respondents to be impacting negatively on the quality of the EIA reports.
513 60% of Private consultants and environment authorities, referred to EIS, at least once during the
514 interviews, as *"copy paste reports"*.

515 3.12 EIA system monitoring (Criterion 12)

516 Article 12 of the EIA Directive essentially calls for a review of the EIA system by each Member State and
517 sharing of this information every six years. This provision is not included in Law 4014/2011 requiring a
518 legislative revision before the transposition period of Directive 2014/52/EU ends. However, should the
519 e-ER be implemented, the data collection demanded by the Directive will be readily available and such
520 monitoring can be automated, highlighting the potential interest to other Member states adopting
521 similar e-ERs.

522

523 4. Conclusions and recommendations

524 Based on all the above results, it is worth reflecting on whether the Greek streamlining reform improved
525 the effectiveness of the EIA system. Using section 1.1 definition of effectiveness, procedurally in its
526 majority, legislative compliance with Directive 2014/52/EU was achieved. However, when substantive
527 effectiveness is examined serious concerns are raised regarding the lack of implementation and even

528 erosion of the systems effectiveness. So although the reformed EIA system theoretically presented
529 improvements over its precursor by pioneering the introduction of centralized, open data, digital
530 documentation and consultation management systems such as the e-ER and e-ID which follow a project
531 throughout its physical and administrative life cycle; the results of this study highlight the failure of the
532 political system to implement the Law. This failure can be attributed primarily because its
533 implementation required the publication of numerous enacting MDs. An important contextual
534 information is that during the final phases of the publication of the framework law 4014/2011 the
535 responsible Minister was abruptly changed thus the reform, lost its initial political direction prior to
536 complete legislative implementation. This had two arguably negative consequences: First, during the
537 period that some very important MDs were not issued, parallel, “temporary” and non-transparent
538 processes were established. Second, and most important, some MDs, instead of laying a solid ground for
539 the Law’s implementation, actually contradicted the original spirit of the reform, thus limiting its capacity
540 to increase the effectiveness of the EIA System.

541
542 This paper’s review of post reform EIA reports shows that they are of very poor quality. Furthermore,
543 through their answers to the questionnaire and in the interviews, EIA stakeholders perceived the EIA
544 system to be currently overall ineffective. This finding confirms Broad’s (1995) statement in Morgan
545 (2012, pg 10) *“The shortcomings of the EIA system are not an oversight, or a result of faulty judgment,
546 rather, they reflect a policy direction shaped by those with a vested interest in the continued
547 mismanagement of natural resources, This is not a demonstration of policy failure; it is a demonstration
548 of political success in managing natural resources for the benefit of those who control the state (Broad
549 1995)... the problem is not the absence of political will to implement a more meaningful EIA system;
550 rather, the problem is the presence of political will representing elite interests (Broad 1995)”*. Regarding
551 transactive effectiveness with the aim of reducing the cost and lengthiness of the EIA process, which was
552 troikas reported aim for initiating this EIA streamlining reform; the initial results of this study indicate
553 that effectiveness improvement remains to be proven. Although scoping may no longer exist,
554 theoretically reducing licensing times, post EIA decision, non-transparent supplementary procedures and
555 reporting requirements have been added which may be reducing the overall transactive effectiveness.
556 Finally, regarding the normative effectiveness in absence of the e-ER implementation, stakeholder
557 consultation transparency and information sharing has not improved. Based on the findings of this
558 multidimensional research a number of recommendations for improvement are proposed (section 5.1)
559 as well as questions for further research (Section 5.2)

561 5.1 Recommendations for Greek EIA system effectiveness improvement

- 562 A. Enhance EIA decision making and governance structures by:
- 563 ▪ making EIA DETC approval an accountable decision of the Environmental Administration rather
 - 564 than a “political” decision taken by a legally unaccountable Minister,
 - 565 ▪ implementing Law 4014/2011 in its entirety, including provisions for e-ER implementation,
 - 566 Inspectors, EIS evaluators, etc.,
 - 567 ▪ revising all contradictory Ministerial Decisions currently limiting public consultation, the use of
 - 568 the e-ER and the sharing of EIA process information,
 - 569 ▪ ensuring a transparent consultation procedure to final technical studies, DETC Renewal and
 - 570 DETC revision reports,
 - 571 ▪ urgently revising contradictory to Habitats Directive provisions for “compensation” mitigation
 - 572 measures for environmental damage caused in Natura 2000 areas.
- 573 B. Ameliorate the quality of EIS evaluations reports and DETCs by:

- 574 ▪ using e-ER to publish all reports, increasing public scrutiny,
575 ▪ EIA Public and private sector capacity building and training in evaluation and assessment
576 methodologies,
577 ▪ implementing provisions for external EIS evaluators and EIS quality review processes/checklists,
578 ▪ developing guidance on EIA assessment methods such as landscape impact assessment as well
579 as implementation guidance on procedures such as alternatives consideration and monitoring
580 plan development,
581 ▪ establishing an accreditation and training scheme for EIA consultants and evaluators replacing
582 the generic “27 researchers diploma”.
- 583 C. Stakeholder and public participation processes improvement by:
- 584 ▪ publishing all EIA process related reports openly on the e-ER to the public according to (Art 18),
585 ▪ making provisions for mandatory consultation prior to EIA publication at least for large A1
586 projects,
587 ▪ provision of training to both public and private sector in best practice consultation facilitation
588 methods,
589 ▪ enabling real time viewing of all stakeholder consultations.
- 590 D. Enable and improve process effectiveness and quality of monitoring and mitigation measures by:
- 591 ▪ establishing both public and private inspection bodies and implementing inspection and
592 monitoring provisions according to art 20,
593 ▪ revising MD 48963 provisions on the “provisional nature” of monitoring making it mandatory as
594 stipulated in law 4014/2011,
595 ▪ ensuring that mitigation and monitoring measures are clearly described within EISs & DETCs,
596 rather than in non-transparent post approval, final studies.

597 5.2. What lessons can be learned for implementation practices in other countries? Important
598 questions for further research.

599 As Bond et al, (2014) and Gibson (2012) highlight there is a global tendency to streamline EIA systems
600 with the aim of improving transactive effectiveness, with the danger of eroding the potential procedural,
601 substantive and normative dimensions of effectiveness in practice. The results of this study confirm this
602 danger. Authors argue that streamlining the EIA process does not necessarily result in the speeding up
603 and reduced costs of the development process, but as seen in the case of Greece, could merely just be
604 transferring them further down the development process. Further, substantive effectiveness evaluation
605 research is needed such as comparing project case studies of similar nature in pre and post reformed EIA
606 systems.

607 Finally, despite the numerous flaws of the reformed Hellenic EIA system identified through this research,
608 the reformed EIA system contains a significant innovation. It proposes the adoption of a project life-cycle
609 approach in combination with purpose built National e-governance geospatial ICT system to enhance
610 transparency and information management of the entire process. The authors review of other EIA
611 countries systems literature, highlights an absence of description, consideration of such tools.
612 Considering the internationally accepted contribution of e-governance in reducing public sector
613 corruption and improving transparency (Krishnan, et al. 2013) in an era where science is moving into the
614 4th revolution of Big data and Artificial Intelligence, the authors feel the academic EIA community should
615 urgently seek to join forces with the ICT community and explore the potential of e-governance tools in
616 improving the EIA system effectiveness in a procedural, transactive, substantive and normative way.

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740 **FIGURE CAPTIONS**

741 **Figure 1:** Research design.

742 **Figure 2:** The Greek EIA and Environmental Licensing process.

743 **Figure 3:** e-ER functionality, e-ID and EIA project life cycle as proposed in Hellenic Republic 2011a.

744 **Figure 4:** Structure and potential functionality of the proposed Greek EIA Database of georeferenced e-ID
745 data.

746 **Figure 5:** Survey respondents' perceptions regarding the improvement of EIA System Effectiveness.

747 **Figure 6:** Greek EIA System following the 4014/2011 legislative reform.

748 **Figure 7:** Relative Ranking scores regarding perceptions of the most important components of EIA reform
749 which hold potential to improve its effectiveness.

750 **Figure 8:** Relative Frequencies of EIA reports' grades for the minimum requirements of Glasson et al.
751 (2005) evaluation criteria (N=105).

752 **Figure 9:** Survey respondents' perceptions regarding EIA public participation

753

754 **Annex I: Online Questionnaire (original in Greek)-On effectiveness evaluation of Environmental**
 755 **Licensing of Projects and Activities system in Greece**

756 **1. What is your professional involvement regarding the Environmental Licensing Process?**

757 Competent Authority Representative

758 Private Sector EIA consultant

759 Other (specify)

760 **2. To what extent do you agree or disagree with the following statements? (Select one option:Strongly**
 761 **agree, Agree, neither agree nor disagree, Disagree, Strongly Disagree)**

762 a. The Environmental Licensing Process of projects and activities in Greece ensures the minimization of
 763 Environmental Impacts

764 b. The Environmental Licensing Process of projects and activities is applied effectively in Greece.

765 c. The existing legal framework is adequate to ensure the effective implementation of the Environmental
 766 Licensing Process in Greece.

767 d. The effectiveness of the environmental licensing process of projects and activities has improved as a
 768 result of the Law 4014 / 2011.

769 i. If you disagree, please rank the relative significance of the following possible reasons that make you
 770 disagree with statement d.

771 (Rate starting with 5 for the most important reason, with 4 for the next most important, etc.)

	1	2	3	4	5
The legislation is not implemented.					
The supporting tools prescribed by the legislation have not been activated (e.g. Environmental ID).					
There is lack of guidance.					
The EIS consultation process is not effective.					
The revised law is not well written.					
If other please specify.....					

772

773 ii. Please rank the relative significance of the following, regarding the improvement of the effectiveness
 774 of environmental licensing of projects and activities in Greece as enacted by the Law 4014/2011.

775 (Rate starting with 7 for the most effective process, with 6 for the next more efficient process etc.)

	1	2	3	4	5	6	7
Establishment of Electronic Environmental Registry- Environmental ID							
Establishment of Central (Regional) Council for Environment Licensing							
Department of Environmental Licensing							
Activation of effective public consultation process							

Establishment of Certified EIS Evaluators Registry							
Special Agency of Environmental Inspectors							
Special Ecological Studies							

776

777 **3.** Describe the three major barriers against the effective implementation of the environmental licensing
778 process of projects and activities in Greece.

779

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781

782 **4.** Indicate three changes you would make if you had the legislative opportunity to improve the
783 effectiveness of environmental licensing process for projects and activities in Greece.

784

785

786

787 **5.** From your experience, which do you consider the fundamental weaknesses of the EISs?

788 (Significance Scale: 0 (not a weakness) -5 (more common / significant weakness))

	0	1	2	3	4	5
The description of the project comprising information on the site, design and size of the project is usually inadequate.						
The data collected and presented to identify and assess the significant impacts on the environment is insufficient.						
The examination of basic alternatives is not sufficient as well as the description of the main options that take into account environmental impacts.						
The procedure and the results of the consultation process conducted during the EIA process are not incorporated in the final report (EIS).						
A brief description of the scoping process is not included.						
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.						

789

790 **6.** What measures would you suggest to be applied towards improving the quality of the submitted EISs?

791

792 **7.** The consultation process between advisory services is effective in Greece(Select one option, Strongly
793 Agree, Agree, neither agree/nor disagree, Strongly Disagree).

794 **8.** The public consultation process for the evaluation of EISs is effective (Select one option, Strongly
795 Agree, Agree, neither agree/nor disagree, Strongly Disagree).

796 **9.** Public consultation (e.g. local community, NGOs) should be mandatory prior to the EIS submission
797 (Select one option, Strongly Agree, Agree, neither agree/nor disagree, Strongly Disagree).

798

799

800 **Annex II: Executive Ministerial Decisions issued for the operationalization of EIA framework Law**
801 **4014/2011.**

	Title of Decision	Official Government Gazette / Date	Article/Paragraph
1	1a Classification of public and private projects and activities into categories and subcategories pursuant to Article 1 paragraph 4 of Law 4014/2011 (OGG A' 209/2011)	MD 1958/13.01.2012 YPEKA OGG 21B/13.01.2012	Article 1/ Paragraph 4
	1b Ministerial Decision no 20741/12 for the modification and completion of Ministerial Decision no 1958/12 (Government Gazette Bulletin 1565/B/2012) or MD 15277/23.03.2012 OGG	1565/B/08.05.2012	
	1c	595/B/14.03.2013	
	1d 1077B/09.04.2012	1077B/09.04.2012	
2	Specialized procedures for the integration into the AEPO and the Standard Environmental Commitments of the intervention approval in forests – forested areas	(MD 15277/23.03.2012 OGG 1077B/09.04.2012)	Article 12
3	Establishment and operation of a special website for AEPO (Decision on Environmental Terms Approval) posting and AEPO renewal/modification decisions	OGG 1470B/03.05.2012	Article 19α
4	Ministerial Decision 21697/12 on the establishment of the Central Environmental Clearance Council (“KESPA”)	224/YOΔΔ/03.05.2012	Article 13, paragraph 1
5	Regulation Framework of the Central Environmental Clearance Council (“KESPA”)	3263/B/20.12.2013	Article 13, paragraph 1
6 - 26	Standard Environmental Terms (SET) of public and private projects and activities of Category B.	Analytically presented Annex III	Article 8, Paragraph 3
27	Joint Ministerial Decision 48963/2703/5.10.2012 on content specifications of environmental permits for projects and activities category A of JMD 1958/13.1.2012 of the Minister of Environment, Energy and Climate Change (B-21), as applicable, in accordance with Article 2 § 7 of Law 4014/2011 (A 209)	2703/B/05.10.2012	Article 2, Paragraph 7
28	Ministerial Decision 167563/EYΠE on the procedure and the environmental clearance criteria for projects and activities (Government Gazette 964/B/2013)	964/B/19.04.2013	Article 2, Paragraph 13

29	Ministerial Decision no 52983/1952 on the standards and requirements of the special ecological study for category B projects	2436/B/27.09.2013	Article 10, Paragraph 2
30	Ministerial Decision 1070225/2014 on the specification of the contents of the environmental clearance files for category A projects as set forth by Ministerial Decision 1958/2012, in accordance with the provisions of Article 11 of Law 4014/2011	135/B/27.01.2014	Article 11, Paragraphs 3,4,5 and 6 / Article 10 Paragraph 2
31	Ministerial Decision 1649/45/2014 on the specification of the procedures of consultation procedure and information to the public and participation of the interested party in the public consultation procedures within the context of the environmental licensing of category A projects and activities as set forth by Ministerial Decision 1958/2012, in accordance with the provisions of Article 19 para. 9 of Law 4014/2011	45/B/15.01.2014	Article 19, Paragraph 9

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804 **Annex III: Ministerial Decisions issuing template- standard environmental commitments for B (small**
805 **scale) projects or activities**

	Projects and/or Activities	Government Gazette B / Date
1	Joint Ministerial Decision 15/4187/266/ 11.04.2012 on the Template Environmental Commitments of Industrial Activities (Government Gazette B 1275/B/11.4.2012)	1275/B/11.04.12
2	Standard Environmental Commitments for mobile phone base stations	1510/B/04.05.12
3	Tourism	3438/B/24.12.12
4	Ministerial Decision no. 3791/2013 on the Template Environmental Commitments of Renewable Energy Projects (Government Gazette bulletin B' 104/24.01.2013)	104/B/24.01.13
5	Ministerial Decision no. 46296/2013 on the Template Environmental Commitments of poultry and livestock facilities (Government Gazettebulletin B' 2002/14.08.2013)	2002/B/14.08.13
6	Ministerial Decision 46294/14.08.2013 on the Template Environmental Commitments of Mining and Related Activities (Government Gazette B 2001/B/14.8.2013)	2001 /B/14.08.13
7	Electric Power Stations	1987/B/14.08.13
8	Salt Lakes	2356/B/20.09.13
9	Joint Ministerial Decision 170163/20.09.2013 on the Template Environmental Commitments of Salt Production Facilities (Government Gazette B 2405/B/26.9.2013)	2405/B/26.09.13
10	Ministerial Decision 169810/14.08.2013 on the Template Environmental Commitments of High Voltage Stations and Sub-stations (Government Gazette B 1999/B/14.8.2013)	1999/B/14.08.13
11	Joint Ministerial Decision 46537/22.08.2013 on the Template Environmental Commitments of Stations Refuelling Vehicles with Gas or Liquid Fuels (Government Gazette B 2036/B/22.8.2013)	2036/B/22.08.13
12	Joint Ministerial Decision 169905/22.08.2013 on the Template Environmental Commitments of Prisons and Detention Centres (Government Gazette B 2035/B/22.8.2013)	2035/B/22.08.13
13	Car Repair Stations	2446/B/30.09.13
14	Joint Ministerial Decision 170078/07.10.13 on the Template Environmental Commitments of Tourism facilities and sport and recreational urban development projects (Government Gazette B 2507/B/7.10.2013)	2507/B/07.10.13
15	Hydraulics	3071 /B/03.12.13

16	Joint Ministerial Decision 170545/27.09.2013 on the Template Environmental Commitments of Port projects (Government Gazette B 2425/B/27.09.2013)	2425/B/27.09.13
17	Template Environmental Commitments of Environment Infrastructure Projects (Government Gazette bulletin B' 3072/03.12.2013)	3072/B/03.12.13
18	Joint Ministerial Decision 170613/07.10.2013 on the Template Environmental Commitments of Land and Air transport projects (Government Gazette B 2505/B/7.10.2013)	2505/B/07.10.13
19	Joint Ministerial Decision 170544/ 26.09.2013 on the Template Environmental Commitments of Facilities for Vessels Wintering and minor Repairing (Government Gazette B 2407/B/27.9.2013)	2407/B/26.09.13
20	Ministerial Decision no 172425 on the Template Environmental Commitments of sanitary units (Government Gazette B' 3266/20.12.2013)	3266/B/20.12.13
21	Ministerial Decision no. 171331/2013 on the Template Environmental Commitments of old metal collection facilities or facilities for the temporary collection of end of life vehicles, facilities for the collection of construction material (Government Gazette bulletin B' 2932/20.11.2013)	2932/B/20.11.13

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