

Contents lists available at [ScienceDirect](http://ScienceDirect.com)

# Environmental Impact Assessment Review

journal homepage: [www.elsevier.com/locate/eiar](http://www.elsevier.com/locate/eiar)

## Reforming EIA systems: A critical review of proposals in Brazil



Alberto Fonseca <sup>a,\*</sup>, Luis Enrique Sánchez <sup>b</sup>, José Claudio Junqueira Ribeiro <sup>c</sup>

<sup>a</sup> Federal University of Ouro Preto, Minas Gerais, Brazil

<sup>b</sup> University of São Paulo, São Paulo, Brazil

<sup>c</sup> Escola Superior Dom Helder Câmara, Belo Horizonte, Minas Gerais, Brazil

### ARTICLE INFO

#### Article history:

Received 6 June 2016

Accepted 7 October 2016

Available online 17 October 2016

#### Keywords:

Environmental Impact Assessment (EIA)

Environmental licensing

Policy change

Policy evaluation

Environmental policy

Developing country

### ABSTRACT

Environmental Impact Assessment (EIA) systems are under pressure in many countries, driven by a call for efficiency and streamlining. Such a phenomenon is particularly clear in Brazil, where, in the past few years, a number of influential associations put forward documents proposing significant changes to environmental licensing and impact assessment regulations. So far, there is no publicly available information about any initiative towards scrutinizing those proposals. The objective of this study was to critically review the merits and drawbacks of the changes proposed in those documents. The analysis triangulated content analysis, focus group and online survey data. The focus group included ten seasoned Brazilian EIA specialists; the survey, based on Likert-scale and open-ended questions, resulted in 322 valid responses from EIA professionals. Results show that the proposals generally agree that the current EIA system, while playing a key role in mitigating impacts and enhancing project design, needs many changes. Nonetheless, the proposals neither offered solutions to overcome political, technical and budget barriers, nor established a sense of priority of the most urgent issues. Findings from the focus group and the survey signaled that a number of proposed actions might face public outcry, and that those changes that do not depend on legislative action are more likely to be implementable. Previous studies about EIA reform focused mostly on the context of developed countries after changes had taken place. This study, while addressing the perspective of a large developing country in a “before-reform” stage, shows that capacity-building is a key requirement in EIA reform.

© 2016 Elsevier Inc. All rights reserved.

### 1. Introduction: growing streamline-driven EIA reforms

Environmental Impact Assessment (EIA) is arguably the world's most widespread environmental policy tool. In 2012, all but two of the United Nations members had national legislation or some form of international legal requirement related to the use of EIA (Morgan, 2012). EIA is featured in several international treaties such as the Convention of Biological Diversity (Sánchez & Croal, 2012) and adopted by financial institutions as a risk management tool (Sánchez, 2014). When EIA was first regulated in the United States in 1969, the prediction of social and environmental consequences of projects and strategic undertakings was a rather scarce and poorly theorized practice (Maughan, 2014). Today EIA is embedded in thousands of institutions all over the world, attracting the attention of numerous scholars from various disciplines (Fischer & Noble, 2015).

Despite its omnipresence, EIA is being reviewed in many countries, “underpinned by an agenda of increasing efficiency and streamlining approvals processes for developers” (Pope et al., 2013, p. 7). This is certainly the case in Brazil, where both business organizations and

lawmakers are proposing significant changes to the existing EIA system. Simplification and streamlining has been a recurrent concern among EIA practitioners and researchers (Lawrence, 2013), nonetheless, recent regulatory responses to such concerns are being perceived as a threat to EIA effectiveness and environmental protection.

The 2012 revised Canadian Environmental Assessment Act (CEAA) was critiqued by Gibson (2012) who argued that, under the new act, federal environmental assessments would be “few, fragmentary, inconsistent and late”, thus jeopardizing its overall efficiency. Similar concerns were voiced by Australian scholars who reviewed actual and proposed changes to State-level EIA processes (Middle, et al., 2013). A recent study concluded that streamline-driven regulatory EIA reforms, not only in Australia and Canada, but also in South Africa and the United Kingdom, impairs the benefits that EIA is expected to deliver (Bond et al., 2014). Not surprisingly, Pope et al. (2013) ranked such reforms as a top research priority, as it had become one of the key threats to EIA effectiveness.

This study responds to a growing call for research to better understand - and possibly to influence - EIA reform. It does so in the context of Brazil, whose three-decade-old EIA system is under strong pressure for change. In the past few years, the National congress introduced new EIA bills, and a number of influential associations put forward

\* Corresponding author at: Morro do Cruzeiro, s/n, Ouro Preto, MG 35400-000, Brazil.  
E-mail address: [albertof@em.ufop.br](mailto:albertof@em.ufop.br) (A. Fonseca).

documents advocating significant changes in the environmental licensing and impact assessment regulations. These documents propose reforms announced as solutions to a number of perceived problems in the Brazilian EIA system. In doing so, they may influence not only the stage of agenda setting, but also of policy-formulation in so-called cycle of public policy (Howlett and Ramesh, 2009), as they are specifying particular regulatory and policy approaches to enable the changes. So far, there is no publicly available information about any initiative towards scrutinizing those proposals, in spite of their potential effects in the future of EIA in Brazil.

This study aims at filling this gap, while critically analyzing the merits and drawbacks of the many actions proposed in those documents. It thus generates information that can be helpful in the definition of relevant issues and priorities for the Brazilian EIA policy reform. Studies about regulatory changes in EIA tend to take a retrospective look at the changes that had already been implemented (e.g. Gibson, 2012; Middle et al., 2013). This article takes, instead, a more prospective look at the changes that could be considered in future policy reform. The many actions and issues analyzed here, although related to the Brazilian context, are commonly debated in many countries. The findings are likely to be useful for international policy-makers as well.

The remainder of this article is organized in five sections. Next, the article briefly describes the EIA regulatory and institutional context in which the proposals were created. In Section 3, the methodology is explained. Section 4 presents and discusses the results, and Section 5 summarizes the main findings and points out future avenues of research.

**2. The Brazilian EIA system: time for change?**

According to Moreira (1988) and Monosowski (1991), the first EIAs in Brazil were prepared in the early 1970s, as a condition of the World Bank to finance large hydroelectric power plants. In the mid-1970s, the Brazilian States of São Paulo and Rio de Janeiro had created legal requirements for environmental licensing of pollution sources, but they did not require an EIA. It was only in 1983, when the Federal Decree 88351 established details on the application of the National Environmental Policy Act of 1981, that EIA became a mandatory requirement for environmental licensing in Brazil, but yet to be regulated by federal and state-level jurisdictions. Specific EIA regulations came into force in 1986, “when the National Council on the Environment (CONAMA), a new body created by the 1981 law, approved Resolution 1/86 setting the basic components of the Brazilian EIA system” (Sánchez, 2013, p. 193). Since then, numerous EIA and environmental licensing regulations have been created.

The system today has three key traits. First, EIA is mainly used to inform government decision on the licensing of private and governmental projects potentially harmful to communities and the environment. Strategic environmental assessments are still not required, although occasionally developed on a voluntary basis (Margato and Sánchez, 2014; Montañó et al., 2014). The second key trait is the system’s highly precautionary approach to licensing. As shown in Fig. 1, the generic EIA process in Brazil comprises three stages, in which proponents are required, first, to obtain a viability license, known as Previous License, then, a construction or Installation License, and, finally, an Operation License which needs to be periodically renewed. The third key trait of the system is its single-jurisdiction coordination of the licensing process. Unlike other large federative countries, such as Canada and Australia, where EIA

agencies from different jurisdictions may share the approval process of a particular project, in Brazil, proposed projects must follow the procedures of a single EIA agency, either at the federal, state or municipal level. The determination of the competent authority depends on legal screening thresholds, such as those specified by Complementary Law 140/2011.

This three-decade-old EIA system is under pressure for change. For years, industry associations have been pressuring for streamlining the licensing system. Several Civil Society Organizations (CSOs), on the other hand, have voiced criticisms of the current EIA system, especially when applied to large projects in the Amazon. The Federal Accounts Tribunal has been performing operational audits of the federal licensing process with corresponding recommendations for action. Scholars have increasingly been critical of the system’s apparent problems, and calling on policy-makers to enhance the country’s growing web of EIA-related regulations, procedures, and institutions. Today it is clear that EIA and environmental licensing have been playing an important role in mitigating the impacts of new projects in Brazil (Sánchez, 2013). But it is also becoming increasingly clear that the system has numerous opportunities for improvement. Among the most frequently debated problems, particularly in the academic literature, are the low quality of Environmental Impact Statements (MPU, 2004; Fearnside, 2015), growing litigation (Ribeiro, 2010; Scabin et al., 2015), low quality and late public participation (Agra Filho, 2008; Ribeiro & Pinheiro, 2011), poor attention paid to scoping (Borioni et al., 2016), inefficient follow-up control of licensed projects (Fearnside, 2002; Prado Filho & Souza, 2004; Sánchez & Gallardo, 2005), insufficient or inexistent tiering with upper levels of planning (Duarte et al., 2015; Sánchez and Silva-Sánchez, 2008), and disregard for cumulative effects (Neri et al., 2016).

As Nilsson et al. (2016) recently argued, social groups perceive environmental problems differently. For developers, key problems in the Brazilian EIA system include regulatory uncertainties arising from the environmental legislation, the three-stage licensing process, which “contributes to transferring, restarting or revisiting old disputes (...) [and] generates much uncertainty, lengthy delays and high transaction costs” (World Bank, 2008, p. 19), and the role played by the Public Prosecutor’s Office (know in Portuguese as *Ministério Público*) as an “additional and controversial impediment to the environmental licensing of major developments” (World Bank, 2008, p. 21). This World Bank review also identified a number of technical aspects affecting EIA, including the low quality of terms of reference for scoping the impact assessment studies, inadequate communication between relevant agencies, subjectivity of the assessment criteria, and insufficient financial and human resources of the licensing bodies.

In 2013, a number of associations started to go beyond the realm of criticism to propose specific ways to improve the system. Among the most notable cases are the documented proposals of the Brazilian Association of State-level Environmental Agencies (ABEMA, 2013), of the National Industry Confederation (CNI, 2013), and of the Electricity Sector’s Environmental Forum (FMASE, 2013). ABEMA represents 49 State-level EIA agencies and the Federal District Agency (ABEMA, 2016). CNI is Brazil’s largest industry association representing 1250 industry unions that have more than 700 thousand affiliated industries (CNI, 2016). FMASE represents the views of 20 large national energy/electricity-related associations, centers and foundations (FMASE, 2016). Given the credentials and political and economic power of



**Fig. 1.** The generic three-stage EIA/Licensing Process in Brazil.

these institutions, it is expected that their proposals influence the agenda of policy- and lawmakers. As Crabbé and Leroy (2008), explain

*(...) the questions of whether and how social problems can be placed on the agenda depend mainly upon the capability of the various social and political actors to push through 'their' issues and problem definitions. This capability, in turn, depends partly upon the actors' own resources in terms of expertise, personnel, financial and other means, and partly upon the political context in which the policy unfolds. (p. 13).*

Current legislative and normative work in the Brazilian National Congress and CONAMA corroborates this scenario. Both the Senate and the Chamber of Deputies have presented EIA reform bills underpinned by some of the ideas proposed by ABEMA, CNI and FMASE (Brazilian Senate, 2016a, 2016b; Chamber of Deputies, 2015).

In early 2016, CONAMA started discussions on a new regulation, based on the ABEMA's proposal (MMA, 2015).

Better understanding these proposals is a critical ask in ensuring that the looming EIA reform in Brazil is guided by a clear understanding of the many options available and their respective likely consequences. The more informed policy-makers are, the less likely they are to generate what Gibson (2012) called, in his review of the new Canadian EIA Act, a "full retreat".

### 3. Methodology

This study followed a predominantly qualitative approach, which is particularly useful in the exploration of social problems that have not yet been exhaustively researched (Creswell, 2007; Denzin & Lincoln,

**Table 1**  
Key aspects of reviewed proposals.

	ABEMA (2013). New Proposals to Environmental Licensing in Brazil (92 pages)	CNI (2013). Industry Proposal for the Enhancement of Environmental Licensing (88 pages)	FMASE (2013). Proposals of Institutional Directives to the new Legal Framework of the Electricity Sector's Environmental Licensing (9 pages)
Re-presented members	49 State-level EIA agencies and the Federal District EIA agency	700 thousand Brazilian industries and 1250 industry unions	20 national energy/electricity-related associations
Methodology	Questionnaire administered to all state-level agencies. Validation through work groups and a multi-stakeholder national meeting	National questionnaire administered to 27 regional industry associations. Workshop and work groups (including representatives of FMASE)	Unclear (not disclosed)
Driving issues	<ul style="list-style-type: none"> <li>Lack of strategic environmental planning;</li> <li>Poor consideration of land-use factors;</li> <li>Low objectivity and excessive discretion in EIA agencies;</li> <li>Imprecision in the definition of Significant Impact (for screening purposes);</li> <li>Multiple agencies requiring particular approvals;</li> <li>Unreasonable license conditions;</li> <li>Low efficiency of EIA methods;</li> <li>Inefficient public hearings;</li> <li>Low institutional capacity in EIA agencies;</li> <li>Focus on procedures, rather than on decision-making quality and environmental effects.</li> </ul>	<ul style="list-style-type: none"> <li>Excessive bureaucracy;</li> <li>Confusing regulations;</li> <li>Low technical capacity in EIA agencies;</li> <li>Excessive and inappropriate license conditions;</li> <li>Insufficient information in environmental statements;</li> <li>Poor government follow-up;</li> <li>Complex, time-consuming and unpredictable procedures;</li> <li>Generic Terms of Reference for the scope of impact assessment studies;</li> <li>Lack of environmental planning and environmental zoning.</li> </ul>	Inefficiency of federal-level EIA/Licensing of Electricity-related projects (implicit in the document, specific drivers were not published).
Key proposed changes	<ul style="list-style-type: none"> <li>Stimulate government-led Strategic Environmental Assessments;</li> <li>Strengthen the whole institutional framework, giving EIA/Licensing agencies more budgetary power and technical capacity;</li> <li>Include land-use and geographical factors in decision-making;</li> <li>Improve project screening lists;</li> <li>Improve understanding of "significant impact";</li> <li>Limit the power and role of intervening institutions;</li> <li>Improve EIA agencies' multi-disciplinary technical and legal analysis;</li> <li>Change public hearings format to become more transparent and structured;</li> <li>Integrated licensing to other environmental policy tools;</li> <li>Created a central government office to coordinate document filing and requests;</li> <li>Restructure the National Environmental Council (CONAMA); and</li> <li>Improve key EIA-related legislation, such as Law 6938/1981, CONAMA Resolutions 01/86 and 237/97, Complementary Law 140/2011, and numerous State-level legislations.</li> </ul>	<ul style="list-style-type: none"> <li>Adopt effective planning tools to guide, simplify and speed-up the licensing process;</li> <li>Strengthen EIA agencies with more budgetary power and technical capacity;</li> <li>Give more autonomy to EIA agencies;</li> <li>Enhance electronic document processing and information systems;</li> <li>Require legal responsibility of certificated--professionals over EIA studies;</li> <li>Enhance public hearing procedures and regulations;</li> <li>Harmonize regulations and procedures across jurisdictions, particularly criteria used in screening lists;</li> <li>Speed-up the process, through simplified licensing schemes, with less than three stages; and</li> <li>Implement self-declaratory procedures for potentially low-impact projects;</li> <li>Create a central office to coordinate requests and receipts of EIA-related documents;</li> <li>Enhance planning, monitoring and government follow-up;</li> <li>Improve definition of license conditions;</li> <li>Improve and harmonize criteria for financial compensation;</li> <li>Give entrepreneurs more autonomy in emergency situations;</li> <li>Create better glossary, Terms of Reference, and EIA manuals; and</li> <li>Implement and strengthen Complementary Law 140/2011.</li> </ul>	<ul style="list-style-type: none"> <li>Build institutional capacity in EIA agencies;</li> <li>Consider the institutionalization of Integrated Impact Assessment<sup>a</sup>;</li> <li>Create a new federal office linked to the Federal Ministry of the Environment, to coordinate filing and requests of EIA-related documents;</li> <li>Improve regulations of the National Hydro-electricity system;</li> <li>Create detailed, typology-specific Terms of References;</li> <li>Create general regulation defining key concepts and institutional responsibilities;</li> <li>Strengthen the Presidency of the Republic Government Council;</li> <li>Optimize electronic systems and procedural integration;</li> <li>Improve License condition definition;</li> <li>Enhance and harmonize financial compensation criteria;</li> <li>Improve criminal responsibility criteria in Law 9605/98; and</li> <li>Strengthen cooperation schemes set up by Complementary law 140/2011.</li> </ul>

<sup>a</sup> A term used in Brazil to describe the assessment of cumulative impacts of several proposed dams in a watershed.

2005). Data were sequentially collected and triangulated among three sources: content analysis, focus group, and online survey.

The contents of the three aforementioned documented proposals were analyzed using a list of topics (mirrored in the first column of Table 1) guided by the following questions: (1) Who was involved in the creation of the proposal? (2) What methods were used to generate the document? (3) What were the main driving issues/problems? (4) What are the contents and nature of the main proposed changes?

Additional data were collected through an eight-hour focus group, held in Belo Horizonte, Minas Gerais. Two moderators, who are among the co-authors of this study, planned the dynamic of questions and answers, so that the debate stayed focused on the main proposals put forward by ABEMA, CNI and FMASE. The group of participants included ten seasoned specialists in EIA and environmental licensing, including a former Federal Minister of the Environment (then Municipal Secretary of the Environment), a former Attorney and State Secretary of the Environment, a Corporate Director of Environmental Affairs, two State Directors of EIA and Environmental Licensing, a President of regional environmental NGO, a regional coordinator of the federal environmental agency, an industry consultant, and a director of an environmental consultancy. It is noteworthy that three among the ten specialists were somehow involved in the making of the ABEMA, CNI, or FMASE's proposals. It should be noted that the group did not include representatives of CSOs nor the Public Ministry, a very important actor in environmental licensing. To compensate for this lack of civil society participation, the research adopted a somewhat "unorthodox" focus group approach, by carrying it out in the format similar to a round table, inside a public hall, where about other 150 pre-registered environmental specialists, including many CSO representatives, had the chance to ask a few questions. The discussions focused on the main proposed changes previously identified in the content analysis. The focus group was audio and video recorded, and then coded and analyzed. For the purpose of confidentiality, the statements cited here use the code "FG" followed by the participant's identification number.

Finally, an online survey was conducted to get additional perspectives on the findings of the content analysis and the focus group, as well as to capture a better sense of the relative priority and challenges among some of the main proposed changes previously identified in the content analysis. The survey questionnaire was active on the web-based Survey Monkey platform between September 1st and 22nd, 2014. The survey did not attempt to understand the opinions of a representative sample of environmental specialists or professionals, after all, in Brazil, the concept of "environmental specialist" is a rather fuzzy, unregulated subject. Their exact population and dispersion is unknown. Nonetheless, this study attempted to get as many responses as possible from reliable sources, using, for example, contacts' database of the Brazilian Association for Impact Assessment (ABAI, 2016). The survey link was sent to 1431 email contacts of experts in environmental management, licensing and impact assessment. The survey link was also publicized in a national LinkedIn group related to EIA and environmental licensing. The survey, which included Likert-scale and open-ended questions (10 in total), resulted in 322 valid responses. Descriptive statistics of the results were generated in spreadsheet software.

## 4. Results

### 4.1. Content analysis

The three proposals were published in 2013 by different associations representing state-level EIA agencies and industry constituencies. The ABEMA and CNI proposals, which represent state-level environmental agencies and the national industry, are significantly more comprehensive than FMASE's, which reads more like a short, electricity sector-specific "appendix" of the CNI proposal. While the ABEMA proposal reflects the views of state-level government agencies, it is aligned with the industry-oriented CNI proposal. The methodology used to develop the

ABEMA and CNI proposals included workshops and questionnaires sent to representatives in all Brazilian states. FMASE did not disclose the methodology behind its proposal, a fact that might lessen its credibility. Overall, the content analyses (see synthesis of main findings in Table 1) revealed more similarities than discrepancies in the three proposals.

The driving problems identified in the proposals reflect a general perception of ineffectiveness and inefficiencies in Brazil's EIA system, stemming from problems such as low institutional capacity of EIA agencies, excessive bureaucracy, time-consuming procedures, among others. The means to address these problems, in all three documents, include many procedural, institutional, and legal changes. One could argue that the three proposals are actually calling for a "reform" in Brazil's EIA system, given the depth and potential implications of the many proposed changes. Even the FMASE proposal, while focusing on specific problems of the federal-level electricity sector, calls for significant changes in the system that would affect legal and institutional frameworks at all levels.

The three proposals generally agree on the need to: better integrate EIA and environmental licensing with other planning tools, streamline procedures, strengthen environmental agencies, improve public hearings, harmonize state-level environmental offset criteria, improve screening lists and scoping, create a single office to coordinate filing and requests of EIA-related documents, among others. Content analysis also revealed some proposal-specific calls for change. For example, CNI's is the only proposal calling for self-declaratory licensing schemes and automatic license renewal. ABEMA emphasized the need to rethink the role of CONAMA, a multi-stakeholder body in charge of regulating environmental matters. FMASE called for regulatory changes in the Environmental Crimes Act, in order to limit criminal responsibility of government agents, a particular feature of Brazilian legislation seen as overemphasizing the precautionary principle due to civil servants' fear of prosecution.

Overall, the proposals emphasize procedural, legal and institutional changes. Calls for conceptual changes were mainly related to improving the definition of "significant environmental impact". This is a major issue, as projects deemed to have the potential to cause "significant" environmental harm triggers the mandatory filing of an environmental impact study. The ABEMA proposal was the most detailed and instructive document in terms of regulatory and legal changes. Its final chapter signaled many specific ways to change existing regulations.

The low institutional capacity of Brazilian EIA agencies, most of which lack financial and human resources to efficiently administer the system, was highlighted by ABEMA and CNI. This finding suggests that the pressure for reforming the system in Brazil might be stronger than the pressure in Australia, Canada and UK, as, in Brazil, not only developers, but also EIA agencies are pushing for reform. The fact that ABEMA, an association that represents 49 State-level government agencies, is putting out a document like this is in itself a strong evidence of such pressure.

Content analysis also revealed that none of the three documented proposals provided information about how to overcome the many technical, political, and budget barriers likely to emerge in the implementation of proposed changes. Moreover, the proposals did not indicate the most pressing issues. Their recommendations were simply listed and justified.

### 4.2. Focus group

The statements collected in the various interviews that took place during the focus group corroborate the drivers of the three reviewed proposals, that is, the perception that Brazil's EIA system, despite its many merits, has many opportunities for improvement. For example, participants seem to agree on the need to create and enhance electronic procedures to speed up the system. As one of them put it: "Our excellent online federal tax system shows us that we have the technology needed

to enhance our electronic licensing procedures” (FG-2). The focus group also corroborated the need to improve Brazil's approach to public hearings in EIA, which have long been criticized. Like in the CNI's proposal, one of the participants argued that it is fundamental to improve the quantity and quality of public hearings (FG-10).

The weak institutional capacity of a number of state-level EIA/EL agencies was also pointed out by several participants. One of them, however, recognized that, despite all problems, there are many reasons to celebrate the current situation, since, only a few decades ago, Brazil did not even have environmental institutions (FG-1).

Focus group discussions revealed a potential tension as to the best means to overcome the systems' apparent problems. While two participants were convinced that profound regulatory changes are needed (FG-5 and FG-6), others were of the opinion that changing existing regulations would be a “risky” endeavor, as the resulting text may weaken current requirements (FG-4 and FG-7). The Brazilian Forest Code, which for decades was criticized by rural producers, has become a controversial case of environmental policy reform. Many argue that the 2012 revised code is substantially weaker than the previous 1965 version (Soares-Filho et al., 2014). Brazil is known for having conservative legislators, who are biased towards corporate farming and industrial interests. Such legislators represent a constant menace to pro-environment proposals.

One of the participants (FG-10) reminded that the Brazilian National Environmental Policy Act, while being from 1981, is still poorly implemented. Numerous tools and objectives within that Act need improvement. As he puts it: “Before changing the [EIA regulatory] system, we should try to increase the effectiveness of the National Environmental Policy Act”. Another participant (FG-09), however, was of the view that the system must be changed, and that CONAMA would be the most legitimate forum to implement the regulatory changes in the system.

Overall, the focus group revealed that the implementation of the many actions proposed by ABEMA, CNI and FMASE might be more difficult than they anticipate, given their controversial nature. In this context, policy-makers might need to prioritize and compromise.

#### 4.3. Online survey

The objective of the online survey was to confirm some of the topics identified in the content analysis and focus group and, most importantly, to capture a better sense of the relative priority and challenges among some of the main changes proposed by ABEMA, CNI and FMASE. Findings from the survey, like the focus group, corroborate the view that the Brazilian EIA system needs to be improved, as 220 (68%) out of the 322 respondents strongly agreed, and only 7 respondents disagreed, with that view (Fig. 2).

However, there was not a homogeneous sense of urgency among the many possible measures to improve the system. The survey revealed that those changes that do not depend on legislative action (e.g. enhancing transparency, electronic procedures and planning integration) are likely to be more acceptable, and thus implementable, than others. When asked about what level of priority should be given to a number of specific proposals, the degree of priority varied significantly among respondents (Fig. 3).

The two proposals in the bottom of the list of Fig. 3 received very low or null priority rates among survey participants, arguably meaning that respondents understand they do not represent desirable changes. One of the aforementioned key traits of the Brazilian EIA system, its precautionary three-stage licensing process, was perceived by more than 50% of the survey participants as something that should have null or low priority in any reform. An even lower sense of priority was attributed to the “extinction of the periodical license renewal requirement”. In Brazil, environmental licenses are usually valid for periods ranging from 4 to 8 years. Developers are required to submit a license renewal proposal 90 days prior to its expiration. CNI's document (CNI, 2013) proposed

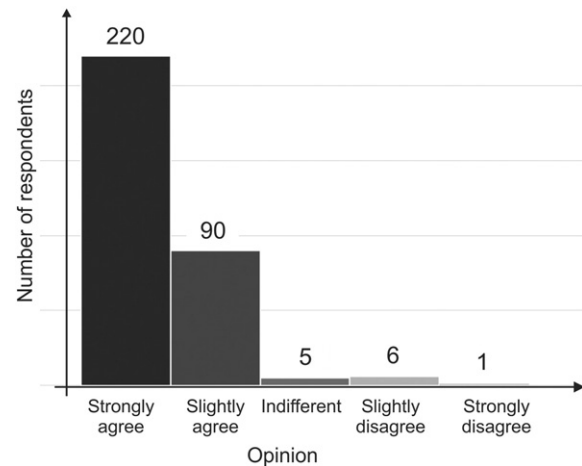


Fig. 2. Responses to the survey question “Does the Brazilian EIA system need to be improved?” (n = 322).

an automatic renewal system, but, as shown in Fig. 3, the overall majority of survey respondents believe this should not proceed.

Among the actions that received “high” rates from more than 50% of respondents are those related to building institutional capacity in EIA agencies: increase EIA agency's budget, as well as improving governmental electronic procedures and information systems. This finding is aligned with the findings from the focus group. Capacity-building emerged, therefore, as key requirement for EIA reform in the Brazilian context. In the view of the focus group, increasing capacity is understood as providing more resources – human, financial, technological, informational – to EIA agencies.

#### 4.4. Discussion

The three proposals are very clearly inspired by what Pope et al. (2013) called an “agenda of increasing efficiency and streamlining approvals processes for developers (p. 7)”. While trying to influence public policy, two proposals clearly mirror what Cobb et al. (1976) called the *Outside Model* of agenda-setting, as they stem from groups that are not in the government structures responsible for the implementation of EIA regulations. The proposal put forward by the Association of State Environmental Agencies, on the other hand, come from a group whose members have autonomy to advance part of the proposals within their own jurisdictions. Indeed, like in other federal countries, State EIA regulations currently differ among themselves and one purpose of the Industry Confederation is to reach more harmonization, a move perceived as highly important by the survey respondents (Fig. 3).

If fully implemented by competent government authorities, those three proposals could translate into an EIA system that is faster, simpler and lighter, in the sense that it would require, for example, less documents and less detailed studies from developers. In doing so, the proposals could also simplify the system for EIA agencies, helping them to cope with their ever-increasing administrative load. Arguably, there is much room for improving efficiency within the existing regulations. Both the federal agency Ibama and some State agencies, as São Paulo's Cetesb, have been reporting decreased EIS review periods.

Nonetheless, the complete effects of the three proposals are difficult to predict, especially when partly implemented, which is arguably the most likely scenario. Since the proposals did not specify what are the key or most important problems to be “fixed”, regulators and policy-makers could, for example, “cherry pick” those that are easier to implement or that satisfy the needs of particular constituencies. In doing so, the proposals could have unintended consequences, such as creating additional government bodies without information systems or budget capacity.

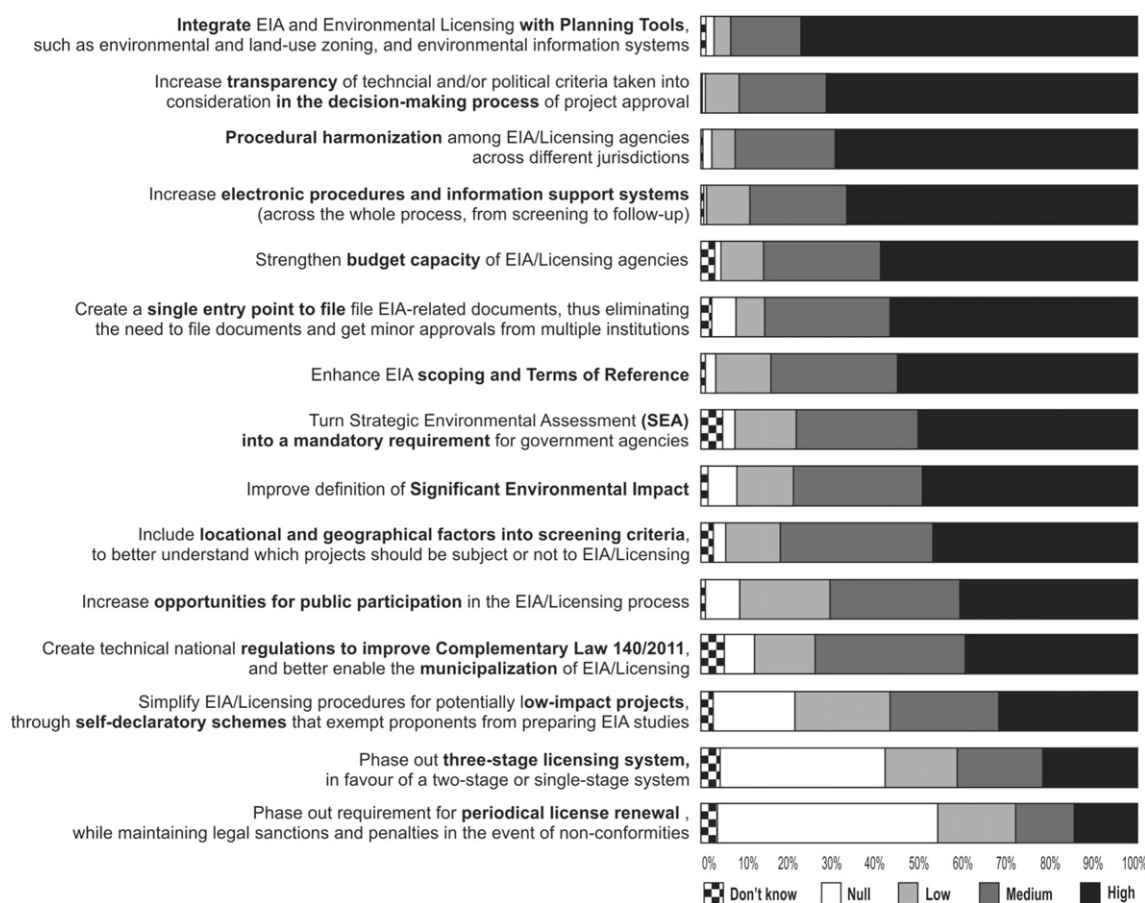


Fig. 3. Experts' opinion on the relative priority of proposed changes to Brazil's EIA system.

Policy-makers and regulators could also misinterpret the actions proposed by those organizations, and respond with inappropriate bureaucracy. It is well known that bureaucrats reinterpret policies in accordance with their own values, representations or interests. An example is the reinterpretation by the São Paulo State agency of the new regulations established in December 1994, which required public consultations to be conducted in the scoping phase. Either because it required an additional workload or because its benefits were not perceived by the agency's staff, a low effort level to involve citizen's organizations resulted in scarce participation and very low effectiveness of scoping meetings, which were later dropped when regulations were revised.

The actual effects of the proposals on environmental quality in the short and long term are also unclear. EIA is, of course, a policy tool that is expected to promote sustainable development (Gibson et al., 2005). The three proposals do recognize the social and environmental importance of EIA. For example, the CNI explicitly states that its proposal "is not about disqualifying environmental licensing, but, on the contrary, it is about enhancing it to be faster, more transparent and effective, so that it can truly be a tool to promote development based on sustainability" (CNI, 2013, p. 44). The proposals, however, do not explain how or why their proposed changes would not negatively affect some of the perceived benefits of EIA to the environment and society. The decision about what to change or not should be based on a systems' negative and positive aspects. But the proposals seem to be driven more by perceived problems; rather than by perceived benefits.

The benefits provided by EIA in Brazil are poorly documented. As Fonseca and Resende (2016) pointed out, EIA research in Brazil is often targeting problems, rather than benefits and best practices. This

problem had been signaled by the Brazilian Federal Accounting Tribunal, who challenged the federal environmental agency, IBAMA, to develop indicators of EIA performance in order to demonstrate its benefits to society (TCU, 2009). Similar findings were observed by the US Government Accountability Office in reviewing NEPA (GAO, 2014). The benefits of EIA, not only in Brazil, but globally, have not yet been properly studied. In this context, regulators and policy-makers need to carefully consider problem-driven proposals for EIA reform.

Not only the social and environmental consequences, but also the legal and regulatory effects of proposed changes are uncertain. ABEMA is proposing changes to existing legislation, as well as the revision of CONAMA resolutions 1/86 and 237. The CNI proposal, however, seems to favor "general national rule". The pluralistic approaches of current normative and legislative works in Brazil corroborate the uncertainty surrounding the legal means to implement EIA reform. The Brazilian National Congress (Brazilian Senate, 2016a, 2016b; Chamber of Deputies, 2015) is debating reforms in national laws, while CONAMA is proposing revisions of resolutions 1/86 and 237/97.

In this scenario, lawmakers need to continually strive to be transparent and open to public participation. But this is arguably not happening in Brazil. The Brazilian Prosecution Service has concerns about the lack of transparency, speed and public participation of current proposals for EIA reform both in the National Congress and CONAMA (MPF, 2016). Instituto Socioambiental, a CSO, gathered signatures from 136 other organizations protesting against the Senate bill (PL 654) intended to radically streamline the EIA process for specific projects (ISA, 2016). The conflict of perceptions identified in the focus group anticipated, in a certain way, current concerns and protests, as it revealed the many tensions underlying current debates.

## 5. Conclusions

The objective of this study was to analyze the merits and drawbacks of the many actions presented in three recent documented proposals for change in Brazil's EIA system. Concerns that reforms of EIA systems are a threat to its effectiveness have been voiced in the literature (Gibson, 2012), but scholarship about this problem is still incipient (Pope et al., 2013), and usually retrospective, in the sense that they tend to evaluate changes that had already been implemented. This article took a more prospective look at the changes that could be considered in policy reform.

Overall, the content analysis revealed that the proposals are pressuring for a reform in the current system, driven by a general perception of ineffectiveness. Low institutional capacity of government agencies is one of the key drivers. Findings from the focus group and the online survey signaled the existence of controversial proposals in the ABEMA, CNI and FMASE documents. Among these is the automatic renewal of environmental licenses. The three proposals should be considered as a list of "potential" solutions to increase EIA effectiveness, as they could trigger unintended consequences, particularly when partially implemented. In general, the implementation of the proposals is likely to simplify and streamline the system, and also affect the quality of decision-making. The actual effects of the proposals on environmental quality in the short and long term are nonetheless unclear.

The proponents of the reforms did not anticipate the potential consequences of their proposals – the very heart of impact assessment. The anticipation of policy effects is, of course, not a usual practice in such initiatives. However, given the controversy surrounding EIA in current day Brazil, the more justifiable and reasonable the proposals are, the more likely they will be to influence government agenda. The proposals neither offered solutions to overcome political, technical and budget barriers, nor established a sense of priority of the most urgent and relevant areas in need of improvement. Further studies need to confirm such consequences, through more focused research, targeting specific issues.

The fact that powerful organizations are trying to influence EIA policy agenda through commissioned studies, workshops and documented proposals represents a positive move from the exclusive use of behind-the-scene political lobbying. However, this added transparency does not necessarily translate into better policy making. The recent Brazilian Forest Code reform is a reminder of how difficult it is to change decades-old environmental policies without controversy and questionable outcomes.

## 6. Acknowledgments

This paper was possible thanks to the financial support of CNPq [grant number 473772/2012-4], and the institutional support of Escola Superior Dom Helder Câmara and Federal University of Ouro Preto. The authors are grateful to all survey and focus group participants.

## References

ABAI, 2016. Associação Brasileira de Avaliação de Impacto (ABAI) (Available at <http://avaliacaodeimpacto.org.br/> (February, 1st, 2016)).

ABEMA, 2013. Novas propostas para o licenciamento ambiental no Brasil. Associação Brasileira de Entidades Estaduais de Meio Ambiente, Brasília.

ABEMA, 2016. ABEMA: O que é? (Available at <http://www.abema.org.br/site/pt-br/abema/o-que-eh/40710;45774;070106;0;0.php> (February 1st, 2016)).

Agra Filho, S.S., 2008. Conflitos ambientais e os instrumentos da política nacional de meio ambiente. *eGesta* 4, 127–140.

Bond, A., Pope, J., Morrison-Saunders, A., Retief, F., Gunn, J.A.E., 2014. Impact assessment: eroding benefits through streamlining? *Environ. Impact Assess. Rev.* 45, 46–53.

Borioni, R., Gallardo, A.L.C.F., Sánchez, L.E., 2016. Advancing Scoping Practice in EIA by Critically Examining Past Experiences (Submitted to Impact Assessment and Project Appraisal).

Brazilian Senate, 2016a. Projeto de Lei do Senado nº 654, de 2015 (Available at <http://www25.senado.leg.br/web/atividade/materias/-/materia/123372> (February 1, 2016)).

Brazilian Senate, 2016b. Projeto de Emenda à Constituição nº 65 - Agenda Brasil 2015 (Available at <https://www25.senado.leg.br/web/atividade/materias/-/materia/109736> (October 6th, 2016)).

Chamber of Deputies, 2015. Projeto de Lei no 3729 de 2004 - Dispõe sobre o licenciamento ambiental, regulamenta o inciso IV do § 1º do art. 225 da Constituição Federal, e dá outras providências (Available at <http://www.camara.gov.br/proposicoesWeb/fichadetramitacao?idProposicao=257161> (November 1st, 2015)).

CNI, 2013. Proposta da Indústria para o Aprimoramento do Licenciamento Ambiental. Confederação Nacional da Indústria (CNI), Brasília.

CNI, 2016. Conheça a CNI (Available at <http://www.portaldaindustria.com.br/cni/institucional/2015/05/1,1739/conheca-a-cni.html> (February 1st, 2016)).

Cobb, R., Ross, J.-K., Ross, M.H., 1976. Agenda building as a comparative political process. *Am. Polit. Sci. Rev.* 70, 126–138.

Crabbé, A., Leroy, P., 2008. *The Handbook of Environmental Policy Evaluation*. Earthscan, London.

Creswell, J.W., 2007. *Qualitative Inquiry & Research Design: Choosing Among Five Approaches*. SAGE Publications, Thousand Oaks.

Denzin, N.K., Lincoln, Y.S., 2005. *The SAGE Handbook of Qualitative Research*. SAGE Publications, Thousand Oaks.

Duarte, C.G., Malheiros, T.F., Gallardo, A.L.C.F., Sánchez, L.E., 2015. Sustainability assessment and energy future: opportunities for Brazilian sugarcane ethanol planning. In: Morrison-Saunders, A., Pope, J., Bond, A. (Eds.), *Handbook of Sustainability Assessment*. Edward Elgar, Cheltenham, pp. 127–152.

Fearnside, P.M., 2002. Avanço Brasil: environmental and social consequences of Brazil's planned infrastructure in Amazonia. *Environ. Manag.* 30, 735–747.

Fearnside, P., 2015. Brazil's São Luiz do Tapajós dam: the art of cosmetic environmental impact assessments. *Water Alternatives* 8 (3), 373–396.

Fischer, T.B., Noble, B., 2015. Impact assessment research: achievements, gaps and future directions. *Journal of Environmental Assessment Policy and Management* 17, 1501001.

FMASE, 2013. Proposta de Diretrizes Institucionais para o Novo Marco Legal do licenciamento ambiental dos empreendimentos do setor elétrico. Fórum de Meio Ambiente do Setor Elétrico (FMASE), Brasília.

FMASE, 2016. Entidades Associadas (Available at <http://www.fmase.com.br/p4898.aspx> (February, 1st, 2016)).

Fonseca, A., Resende, L., 2016. Good practices of transparency, electronic procedures, and social communication in Brazil's Environmental Impact Assessment and Licensing System: a comparative analysis of the websites of state-level agencies. *Engenharia Sanitária e Ambiental* 21 (2), 295–306.

GAO, 2014. Little Information Exists on NEPA Analyses. United States Government Accountability Office (GAO), Washington.

Gibson, R.B., 2012. In full retreat: the Canadian government's new environmental assessment law undoes decades of progress. *Impact Assessment and Project Appraisal* 30, 179–188.

Gibson, R.B., Hassan, S., Holtz, S., Tansey, J., Whitelaw, G., 2005. *Sustainability Assessment: Criteria and Processes*. Earthscan, London.

Howlett, M., Ramesh, M., 2009. *Studying Public Policy: Policy Cycles and Policy Subsystems*. Oxford University Press, Oxford.

ISA, 2016. Manifesto em defesa do licenciamento ambiental no Brasil. Instituto Socioambiental (ISA), Brasília.

Lawrence, D.P., 2013. *Environmental Impact Assessment: Practical Solutions to Recurrent Problems and Contemporary Challenges*. John Wiley & Sons, Hoboken.

Margato, V., Sánchez, L.E., 2014. Quality and outcomes: a critical review of strategic environmental assessment in Brazil. *Journal of Environmental Assessment Policy and Management* 16, 1450011.

Maughan, J.T., 2014. *Environmental Impact Analysis: Process and Methods*. CRC Press, Boca Raton.

Middle, G., Clarke, B., Franks, D., Brown, L., Kellett, J., Lockie, S., Morrison-Saunders, A., Pope, J., Glasson, J., Harris, E., Harris-Roxas, B., 2013. Reducing Green Tape or Rolling back IA in Australia: What are Four Jurisdiction up to?, 2013 Conference of the International Association for Impact Assessment, Calgary, Canada.

MMA, 2015. Termo de Referência para o Grupo de Trabalho de revisão das Resoluções CONAMA nº 01/1986, e nº 237/1997. Ministério do Meio Ambiente Brasília.

Monosowski, E., 1991. Dams and sustainable development in Brazilian Amazon. *Water Power & Dam Construction* 43, 53–54.

Montaño, M., Oppermann, P., Malvestio, A.C., Souza, M.P., 2014. Current state of the SEA system in Brazil: a comparative study. *Journal of Environmental Assessment Policy and Management* 16.

Moreira, I.V., 1988. EIA in Latin America. In: Wathern, P. (Ed.), *Environmental Impact Assessment: Theory and Practice*. Routledge, London and New York, pp. 239–253.

Morgan, R.K., 2012. Environmental impact assessment: the state of the art. *Impact Assessment and Project Appraisal* 30, 5–14.

MPF, 2016. Audiência pública debate amanhã flexibilização em licenciamento ambiental (Available at <http://www.mpf.mp.br/regiao3/sala-de-imprensa/noticias-r3/audiencia-publica-debate-flexibilizacao-em-licenciamento-ambiental-1> (February 23rd, 2016)).

MPU, 2004. Deficiências em Estudos de Impacto Ambiental - Síntese de uma Experiência. Ministério Público da União - 4a Câmara de Coordenação e Revisão, Brasília.

Neri, A., Dupin, P., Sánchez, L.E., 2016. A pressure-state-response approach to cumulative impact assessment. *J. Clean. Prod.* 126, 288–298.

Nilsson, A., Hansla, A., Heiling, J.M., Bergstad, C.J., Martinsson, J., 2016. Public acceptability towards environmental policy measures: value-matching appeals. *Environ. Sci. Pol.* 61, 176–184.

Pope, J., Bond, A., Morrison-Saunders, A., Retief, F., 2013. Advancing the theory and practice of impact assessment: setting the research agenda. *Environ. Impact Assess. Rev.* 41, 1–9.

- Prado Filho, J.F.d., Souza, M.P.d., 2004. O licenciamento ambiental da mineração no quadrilátero ferrífero de Minas Gerais: uma análise da implementação de medidas de controle ambiental formuladas em EIAS/RIMAS. *Revista de Engenharia Sanitária e Ambiental* 9, 343–349.
- Ribeiro, J.C.J., 2010. Licenciamento ambiental e judicialização: o caso de Belo Monte. In: Pinto, É.G., Magalhães, G.A. (Eds.), *Judicialização, orçamento público e democratização do controle de políticas públicas*. Editora O Lutador, Belo Horizonte, pp. 143–167.
- Ribeiro, B.Q., Pinheiro, A.C.D., 2011. Participação Popular no Licenciamento de Atividades Causadoras de Significativo Impacto Ambiental. *Revista do Direito Público* 6, 232–246.
- Sánchez, L.E., 2013. Development of environmental impact assessment in Brazil. *UVP Report* 27, 193–200.
- Sánchez, L.E., 2014. From neighbors to future generations: we are all together! On integration in impact assessment practice. *Impact Assessment and Project Appraisal* 32, 14–16.
- Sánchez, L.E., Croal, P., 2012. Environmental impact assessment, from Rio-92 to Rio + 20 and beyond. *Ambiente & Sociedade* 15, 41–54.
- Sánchez, L.E., Gallardo, A.L.C.F., 2005. On the successful implementation of mitigation measures. *Impact Assessment and Project Appraisal* 23, 182–190.
- Sánchez, L.E., Silva-Sánchez, S.S., 2008. Tiering strategic environmental assessment and project environmental impact assessment in highway planning in São Paulo, Brazil. *Environ. Impact Assess. Rev.* 28, 515–522.
- Scabin, F.S., Pedroso Junior, N.N., Cruz, J.C.d.C., 2015. Judicialização de grandes empreendimentos no Brasil: Uma Visão sobre os Impactos da Instalação de Usinas Hidrelétricas em Populações Locais na Amazônia. *Revista Pós Ciências Sociais* 11, 129–150.
- Soares-Filho, B., Rajão, R., Macedo, M., Carneiro, A., Costa, W., Coe, M., ... Alencar, A., 2014. Cracking Brazil's forest code. *Science* 344, 363–364.
- TCU, Acórdão, 2009. 2.212/2009 - TC 009.362/2009-4. Tribunal de Contas da União (TCU), Brasília.
- World Bank, 2008. *Environmental Licensing for Hydroelectric Projects in Brazil: A Contribution to the Debate*. World Bank, Washington.