



## Strategic Environmental Assessment in higher education: Portuguese and Brazilian cases



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### ABSTRACT

Environmental Impact Assessment is well established in higher education worldwide, with a history going back to the 1970s. In contrast, the teaching and training of Strategic Environmental Assessment is a relatively novel, less consolidated and implanted, but of growing importance as a decision support tool in planning and policy. Therefore, training needs in this domain have grown accordingly, demanding new answers from higher education institutions. Despite the existence of relevant work on sustainability in higher education, and on impact assessment education, there is a dearth of research on education of environmental assessment approaches for strategic levels of decision making. The goal of this research paper is to characterize the profile of Strategic Environmental Assessment in higher education in two distinct situations; Portugal and Brazil. Surveys were conducted to assess Strategic Environmental Assessment integration in their higher education institutions' curricula. Bachelor and masters' programmes and course curricula were analysed through a content analysis based approach. The main results showed a medium state of integration for Strategic Environmental Assessment, while stressing that it is still an unconsolidated area. These results also emphasized that there is a need to discuss the design of Strategic Environmental Assessment specialized courses that respond to societal needs, rethinking the impact assessment educational initiatives and approaches. The integration of this assessment instrument in curricula could have significant implications for the enhancement of higher education practices for sustainable development, by promoting better assessment and management of strategies, policies, legislation, plans and programmes and the decision-making processes involved.

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## 1. Introduction

Strategic Environmental Assessment (SEA) is an environmental policy tool used to perform a formal, comprehensive assessment of

the environmental, economic and social consequences of a policy, plan or programme, and their alternatives, so that any effects/impacts are taken into account in the decision-making process, with the support of stakeholders' participation (Therivel, 2010; Marsden, 2008; Fischer, 2007). Therefore, SEA can support strategic-level decisions and should be complemented with Environmental Impact Assessment (EIA) at project level, where a more in-depth analysis is applied with a narrower scope. Impact Assessment (IA) and Environmental Assessment (EA) are commonly used to refer to different IA instruments, including both EIA and SEA, and also other related instruments, such as health impact assessment or social impact assessment (Morgan et al., 2012; Tetlow and Hanusch, 2012).

*List of Acronyms:* IA, Impact Assessment; EA, Environmental Assessment; EIA, Environmental Impact Assessment; NEPA, United States National Environmental Policy Act; SD, Sustainable Development; SEA, Strategic Environmental Assessment; HESD, Higher Education for Sustainable Development; HEI, Higher Education Institution; HES, Higher Education System; NGO, Non Governmental Organisation.

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SEA was firstly proposed by the United States National Environmental Policy Act (NEPA) in 1969. This regulation addressed EA of projects, programmes, plans and policies. In the European context, EA was introduced in 1985 by the EU Directive 85/337/EEC with reference to the project level (through EIA), and later, recognising that there was a gap between the planning and the project level, SEA was introduced through Directive 2001/42/EC to assess and integrate environmental aspects into plans and programmes.

Regular practice of SEA in Portugal and Brazil is a recent phenomenon. These two countries' SEA realities are still poorly studied, and despite sharing similar cultural and social values, they reflect different contexts, including their legal and institutional environmental frameworks and Higher Education Systems (HES). In addition, the European regulated SEA perspective, implemented in Portugal, can be analysed in contrast to a non-regulated and growing SEA reality, as represented by a leading South American country, and emerging global economy. SEA was enacted in Portugal through the Decree-Law 242/2007, which transposes the Directive 2001/42/EC, on the assessment of the effects of certain plans and programmes on the environment. Before this legislation, a number of what may be broadly considered as SEA early applications were performed in different contexts, such as large projects or sets of small projects.

Brazil lacks a specific SEA law at the national level. In 2003 a 'project of law' (PL 2072/2003) was proposed to mandate application of SEA for policies, plans and programmes; however, it was filed away by January 2011 (Câmara dos Deputados, 2012). A new project of law has been filed (PL 261/2011), which includes SEA among Brazilian environmental policy tools, but it is difficult to predict the outcome of this process.

Some Brazilian states do have specific legislation that mentions the use of SEA. In São Paulo State, SEA must be used to assess the effectiveness of the State Policy on Climate Change (Law no. 13.798/2009); in the State of Minas Gerais, an inter-departmental group was created to co-ordinate the use of SEA and to integrate this instrument into decision-making. The current practice of SEA in Brazil, requiring this kind of evaluation, relates mainly to the EA of large projects, sets of small projects, and developments financed by the World Bank (Malvestio and Montaña, 2013).

Following the international technical, legal and institutional dynamic, teaching and training of IA professionals have been continuously reported, as reviewed by Stelmack et al. (2005) and Ramos et al. (2008). There is a number of publications focused on general guidelines for IA training (e.g. Wood et al., 1996; Lundström and Olausson, 2004), and on key issues that influence IA education together with national and international case-studies (Stelmack et al., 2005; Ramos et al., 2008; Sánchez, 2010; Sánchez and Morrison-Saunders, 2010). Also, there is research developed in order to understand education as a factor influencing implementation of SEA and, at the same time, the benefits derived from the use of SEA that may help alter deep-seated mind-sets towards Sustainable Development (SD) (Briffett et al., 2003).

Although SEA was conceived to implement SD at a strategic level of decision-making, there are many challenges to its realisation and effectiveness. These challenges can be partially overcome through the development of SEA capacity-building, knowledge and practices, as underpinned by Partidario (2011) and White and Noble (2013). Higher Education Institutions (HEIs) are called on to teach, enhance and promote the spread of SEA practices, by developing and broadening their curricula and research, as a means to integrate sustainability considerations into policies, legislation, plans and programmes. Several authors have previously discussed the role of HEIs in SD (e.g. Cortese, 2003; Lozano, 2006; see also the reviews conducted by Disterheft et al., 2013; Karatzoglou, 2013), including the particular analysis of curricula (e.g. Ceulemans and

De Prins, 2010; Lozano and Young, 2013; Pappas et al., 2013), which should lead to multi-disciplinary and trans-disciplinary teaching, research and community engagement (Lozano et al., 2013).

However, although Higher Education for Sustainable Development (HESD) is a growing and emerging field, with a significant array of initiatives on new approaches, concepts, methods and frameworks, or case study applications, as shown by several authors (e.g. Bremer and López-Franco, 2006; Alshuwaikhat and Abubakar, 2008; McCormick et al., 2005), it is still at an early stage of development in many institutions and countries, as emphasized by Lozano et al. (2013) and Mulder et al. (2012). At the same time, IA tools and instruments, and in particular EIA, represent a worldwide-recognised education and research field at HEIs (Gazzola, 2008), mainly pushed by market demand. Professionals with IA skills and competences are required to deal with EIA and SEA specific regulations and their implementation. IA legal requirements are mandatory in many countries (Alshuwaikhat, 2005; Morgan et al., 2012; Tetlow and Hanusch, 2012) or are imposed by international funding agencies (e.g. World Bank). Thus, the market, education and research on IA could represent important drivers to introduce environmental and sustainability related matters into curricula, dedicated environmental programmes, and beyond. Previous research has already shown that programmes non-specifically focused on environmental related matters, such as civil engineering are starting to introduce IA related topics, as identified by Ramos et al. (2008) and Weiland (2012). Areas such as corporate sustainability management, sustainability assessment, including IA related instruments, which cut across several areas of knowledge, could play an important catalytic role in the process of greening curricula. They could also contribute to environmental and sustainability competences, and play a part in the broader goal, as has been pointed out by Lozano et al. (2013), of introducing sustainability issues into all courses and curricula, and throughout all other elements of university and college activities. This includes HEI research activities, campus strategies and operations, and internal and external stakeholder engagement processes, including interaction with local communities, public administration, companies, and non-governmental organizations (NGOs). In addition, HESD should move to integrate strategic competences to solve concrete technical and social problems, as argued by Mulder (2014), where SEA could play a role, and mitigate the lack of a strategy for the integration of environmental and SD in HEI decisions making processes, with consequences on their academic curricula. This should be supplemented with better engagement for societal ethics, justice and responsibilities values of students and educators, and avoid that welfare commitments receive less importance from students' understandings of their professional roles, as emphasized by Cech (2014).

According to Lozano and Lozano (2014) there are five approaches to introducing SD into the curricula that could be synthesized as follows: (i) institute environmental issues and material in an existing module or course; (ii) a tailored SD course; (iii) SD intertwined as a concept in regular disciplinary courses, matching the objectives and scope of each specific course; (iv) SD as a possibility of specialization within the education framework of each faculty, and; (v) developing a specific, integrated curriculum, based on sustainability. SEA inclusion in the curricula of undergraduate or graduate programmes is within the first approach, and could constitute a specific course that covers IA issues. Previous research showed that EA education and training, at the higher education level, is mainly developed as a dedicated course and integrated into undergraduate or graduate programmes (Ramos et al., 2008). There are different academic programme typologies with various specificities and weight/credits for IA courses, which may influence the perception and practice of IA professionals in the community, as

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