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Editorial

Socio-environmental Impact of Research

Andréa Cardoso Ventura[a]

Eduardo Paes Barreto Davel[a]

[a] Federal University of Bahia, Salvador, Brazil

Abstract

Reflecting about the future of Earth and its inhabitants is essential to ensure a possible tomorrow. Therefore, socio-environmental impact shall become a universal and inevitable concern of researchers, educational institutions and scientific research regulatory agencies. Social and environmental impacts, in all senses, must be considered into any production of knowledge. Some questions help incorporate this conduct in academic research: How can research ensure effective socio-environmental impacts on society? What is the best way to conduct research so that it has positive social and environmental impacts from the beginning? How can research be fully dedicated to generating positive socio-environmental impacts in every step? We concluded that socio-environmental impacts must be considered just as much or even more important than those of socioeconomic and technological nature.

Keywords: impact; research; socio-environmental issues.

Introduction

We cannot think about human survival on Earth without considering the need for environmental resources. Human beings impact the environment by using it to live. Historically, nature and human development split during the Industrial Revolution. However, especially in the last five decades, environmental degradation, atmospheric emissions and water pollution have greatly increased, resulting in the exhaustion of natural resources and the conflict between our

current development model and the preservation of life. Along with population growth, consumption and production patterns have worsened the use of non-renewable resources (Soares & Cassiolato, 2015).

To reflect on the future of human and non-human beings, we cannot avoid socio-environmental issues, given the increasing evidence about its effects on Earth, the accumulation of scientific knowledge, and international debates on science. With a catastrophic global climate change, we cannot think of a future with socioeconomic and technological prosperity. As a result, the impacts of scientific research should not be limited to or focused on traditional issues, such as socioeconomic and technological impacts. All research must tackle socio-environmental impacts, showing how researchers are concerned with the future of Earth and its species.

To better understand the socio-environmental impacts of research, we approached a term composed by the adjectives "social" and "environmental". It is widely used in both the academic and the organizational scope, especially regarding business practices (Bizerril, Rosa, Carvalho, & Pedrosa, 2015; Cassiolato, Podcameni, & Soares, 2015; Pessoa, 2021; Teixeira, 2021). Our aim is to use an expression that includes social actions and traces of environmental management and concern (Silva Filho, 2007). Different knowledge fields, such as sociology and ecology, recognize the intrinsic link between social and environmental issues, naming it social environmentalism, social ecology, popular ecology, ecosocialism, etc. (Martínez Alier, 2007; Viola & Leis, 2001). However, a proper use of the expression requires balance between all its dimensions, especially when it comes to management and responsibilities (Silva Filho). Using the compound word is not enough, it must be accompanied by the observation of all possible relationships between each social and environmental issue.

All human activities affect the environment in different degrees, depending on the way of life of each person or community. An indigenous person, for example, impacts the planet's natural resources much less than an average inhabitant of a developed country. These impacts tend to amplify when the environment is used to produce goods and services within the predatory logic of capitalism. Thus, socio-environmental impacts are environmental changes caused by certain human actions or activities, negatively affecting the quality of life, health, the economy, among others (Diniz, Rodrigues, Sousa, & Lima, 2020; Hu, 2011; Sumargo, Kasuma, & Tsang, 2019). They can be local, regional, or global, and may result from actions of organizations of different sizes and productive sectors, or even from individuals and communities.

Research on the impacts of inappropriate or exacerbated use of natural resources stood out on a global scale from the 1970s onwards. Recognizing our impacts in nature demanded sharp reflection, awareness of the future and the institutionalization of the need for environmental management at global, national and local levels. Despite this, the socio-environmental issue is still seen as secondary and a fad, remaining "marginalized from the point of view of the effective action of society, politics and management" (Pessoa, 2021, p. 6).

Researches that analyze human behavior towards the environment gained relevance with the first major UN meeting on the subject, in 1972, entitled United Nations Conference on the Human Environment (Stockholm Conference). This is when the subject established its relevance for society (Pessoa, 2021; Silva Filho, 2007). The Conference resulted in the creation of several other global meetings, bilateral or multilateral international treaties, numerous national regulations and

their consequences in business norms and regulations. However, almost fifty years later, most of the socio-environmental problems of that time (e.g., soil, water and air pollution, deforestation and species extinction) not only remain, but have gotten worse (United Nations Framework Convention on Climate Change [UNFCC], 2020).

Climate change is today's biggest debate, since it not only causes global warming, but also intensifies extreme weather and the rise of new diseases, changes rainfall, hinders food production, increases mass migrations, among others (United Nations, 2015; Ventura, Fernández Garcia, & Andrade, 2019). Many consider that the crisis caused by the Covid-19 pandemic is just a test for what humanity will face because of climate change, and that we should use it to learn about cooperation between the most diverse actors, coordination of global to local actions, etc. (Silva, Soares, Machado, & Arbilla, 2020).

On one hand, socio-environmental issues seem to reach all geographic, global, national and local scales. On the other hand, its impacts are far more intense on poor and discriminated populations, such as indigenous and black populations, among other marginalized social groups (Acselrad, 2010; Martínez Alier, 2007), requiring effective changes in the relationship between society and the environment. Socio-environmental problems tend to reinforce social inequality, as they primarily affect the poorest countries and populations, who are more vulnerable to natural disasters. Consequently, the risk of tensions and conflicts related to socio-environmental issues is increasing all over the world (Soares & Cassiolato, 2015).

Based on research from the 1970s, Herman Daly, an American economist, contributed to a new scientific paradigm: ecological economics. This paradigm defines the biophysical limits for the economic use of natural resources, to avoid harming the environment with uncontrolled exploitation. Later, the researcher became chief economist of the World Bank, responsible for elaborating basic political principles that would shape the so-called sustainable development (Daly, 1999). These discussions culminated in the publication of the report "Our Common Future" (United Nations, 1987), in 1987, considered the great milestone for sustainable development awareness. This publication would go beyond economic development, thus valuing environment protection and social equity. We observe that the "new" proposed development model already considers the inseparability between social and environmental issues. However, "the sustainable development discourse has not been able to produce comprehensive policies or radical changes in individual and collective behavior that are essential on a global scale" (Soares & Cassiolato, 2015, p. 178).

Science offers alternatives for dealing with socio-environmental problems (Pessoa, 2021; Soares & Cassiolato, 2015), requiring urgent action from diverse sectors, such as the State, companies and civil society (Teixeira, 2021). Thus, scientific research is relevant not only to create technological capabilities related to the current dependence on fossil fuels and other non-renewable resources; it should also contribute to a new knowledge method that allows socio-environmental concerns to stand out before any decision taken for the future of humanity.

All fields of knowledge must seek to answer the complex questions that arise. It takes more than technological solutions to develop products or to offer services less dependent on natural resources, whether in the public, private or third sector. We need these to reach positive results and minimize serious social inequalities, with the least possible impact on the environment. All research must consider the most vulnerable populations and their needs.

Generation of positive socio-environmental impacts: a concern for scientific research

The discussions of the most diverse social actors from the most different countries must urgently incorporate the socio-environmental agenda. The speed of this incorporation is directly linked to the scientific community and their emphasis on such issues (Silva Filho, 2007). In the 1970s, research triggered companies, governments and others to worry about new attitudes towards socio-environmental issues. We believe that, nowadays, there must be an even greater emphasis. Both nature and society show that the current development model does not result in positive socio-environmental effects. Climate change and even the pandemic confirm this assertion. Some countries, countless companies and multiple civil organizations want to change how they act. Through research, science can greatly accelerate this process, which is still shy and insufficient for concrete needs.

Interdisciplinary knowledge has been increasingly accredited as the only able to solve this issue, with exchanges between the academia and traditional populations, for example. As Pessoa (2021) recalls, great contemporary social scientists have advocated this proposal, such as Edgar Morin, Enrique Leff and Boaventura de Souza Santos. Rational relationships between society and nature must be rebuilt. To date, most of published scientific findings show the potential effect of humanity in modifying and exploiting nature, without measuring the consequent environmental impacts (Andrade & Oliveira, 2021).

In this context, we highlight how higher education and research institutions are important to society as trainers of skills and critical analysis. These institutions are capable of forming leaders and proposing discussions, solutions and technologies that help society to deal with its challenges (Bizerril et al., 2015; Bolan & Motta, 2007; Lacerda, Silva, Souza, & Lira, 2014). Universities stand out for promoting interdisciplinary research and scientific knowledge based on problem solving, among other roles (Venzke & Nascimento, 2013).

How educational systems create knowledge to solve socio-environmental problems is subject of international debate promoted by the UN, who established the 2005-2014 period as the Decade of Education for Sustainable Development (DESD). Now, the subject is part of the Sustainable Development Goals (SDGs), linked to the 2030 Agenda for Sustainable Development, as presented by United Nations Development Programme (Organização das Nações Unidas, 2015). In short, the SDGs include a complex set of challenges in the economic, social and environmental fields, which requires structural and functional transformations of society. Education is considered essential for this challenge, and it is impossible to deny how universities, as structures, are major in reaching goals and intended changes (Serafini, Moura, & Rezende, 2020; Teferra, 2020), since they combine teaching, research and extension.

However, to fulfill this role, researches must leave the predominantly Anthropocene approach. They should promote socio-environmental issues from an integral perspective, instead of a marginal one (Barbieri & Silva, 2011; Jacobi, Raufflet, & Arruda, 2011; Venzke & Nascimento, 2013). In this sense, Miller, Muñoz-Erickson and Redman (2011) advocate researches that guarantee epistemological pluralism and reflexivity in the transition to sustainability. Epistemological pluralism, mentioned as essential for interdisciplinarity and knowledge exchange, is based on the

recognition and combination of multiple forms of knowledge. Studies must use all relevant knowledge, as well as different perspectives, to guarantee a more diverse, broad and finer understanding of the eminent issue that calls for solutions.

Socio-environmental impacts in management research

In this context, universities that work with training in management become more relevant and strategic. As the National Curriculum Guidelines for the Graduate Course in Management (Brasil, 2005) indicate, this training must commit to improving human conditions. Therefore, management research should completely deviate from the analysis of Horkheimer (1990), who strongly linked it to pragmatism and market success. These researches still seem to overemphasize how managers favor the market (Demajorovic & Silva, 2012; Jacobi et al., 2011; Venzke & Nascimento, 2013). We must change the way we think to face current and future challenges. On the other hand, business schools that stand out internationally, positioning themselves as relevant and innovative, see socio-environmental awareness as a competent management practice that strives for the sustainable future of Earth and its inhabitants (Muff et al., 2013).

Even though sustainable management is an interdisciplinary field (Chiras & Reganold, 2009; Robertson, 2021), concern with socio-environmental management has become a subfield of management research, besides being incorporated into several other themes. As examples, we cite the research of sustainable behavior (Lane & Maznevski, 2019; Pinheiro, Machado, Nascimento, Peñaloza, & Pinheiro, 2020), project management (Silvius, Schipper, Planko, & Van Den Brink, 2012), and leadership (Hull, Robertson, & Mortimer, 2020; Mackey, McIntosh, & Phipps, 2020; Ritz & Rimanoczy, 2021).

However, socio-environmental management is not only growing as a subfield, but also as a proper research field. It focuses, for example, on planning (Lima, Lima Júnior, Assis, & Gurgel, 2018) and decision-making (Silva & Razzolini Filho, 2021). In private management, the number of investigations that address organizational changes (Coelho, Fragoso, Santiago, & Pinheiro, 2020; Pinsky & Kruglianskas, 2017) and their impact on risk and investment evaluation has increased (Torinelli & Silva Júnior, 2021). Regarding public administration, studies have focused on sustainable management efficiency (Soares & Gomes, 2017) with the Environmental Agenda for Public Administration (A3P) (Lanzarin, Camargo, Mazzioni, & Zanin, 2018) as one of its strategies. We also highlight the effects of socio-environmental management in city development (Faria, Russi, Marcato, & Paschoalin Filho, 2017; Leão, Andrade, & Nascimento, 2021) and even in the development of public policies (Góes, Andrade, Jabbour, & Silva, 2021), especially concerning climate change. These examples of researches of socio-environmental and management issues are merely a sample from the huge and varied range of necessary and relevant knowledge.

How to include socio-environmental impacts in research practice?

Including socio-environmental impacts in academic research presupposes recognizing that everything developed for individuals and organizations will have greater or lesser effects on nature and human life. During the conception, execution and composition of research, we must consider

that all human activity is physically limited to the finitude of natural resources, and that different lifestyles of a person or a community impact and are impacted by these same resources.

The socio-environmental issue requires a paradigm shift (Fernandes & Sampaio, 2008) and an alternative way of thinking about the great conflicts of modern society. These conflicts are simply around the difficult relationship between economic development and environmental preservation. The exhaustion of the productive model based on the intensive exploitation of natural resources, especially non-renewable ones, has been increasingly evidenced (Cassiolato et al., 2015). This is the reason why, besides centering the new production model on a low-carbon economy and renewable energy resources, building a new framework of innovation policies for social and environmental sustainable development is so urgent. Thus, this change includes considering socio-environmental sustainability in all its dimensions as essential for development. For this, we need to support science with research that breaks with epistemological determinism, incorporates interdisciplinary action, and allows knowledge exchange with dialogue.

There is no way to reach a new socio-environmental condition without science, technology and innovation. This should be seen as a facilitating factor that help to open a new set of solutions to face the needs of societies (Chesnais, 2015). However, using innovative systems depends on more than companies and teaching and research organizations (Cassiolato et al., 2015). We must observe how these elements interact with each other and with many other social actors and institutions, including policies. Thus, it is evident that, to have a positive socio-environmental impact, it is not enough to research the development of environment-friendly products and services. Several researches in human and applied social sciences, for example, are needed to help understand both the hindering factors of innovation aimed at solving human needs, as well as the existing possibilities.

Other possibilities must go beyond the so-called green innovations, said to be more efficient while still caring for the environment, since they mostly ignore the contradictions inherent to capitalism, which is based on unequal and unlimited growth. Efficiency gains brought about by the logic of “green growth” alone are not enough to solve the scarcity of natural resources, overcome ecological limits and reduce the major problems that intertwine environmental and social issues (Hoffmann, 2011). Such dramatic climate change reduction required, the main and most complex problem humanity faces today, is so critical that traditional innovations will not be able to both preserve the atmosphere and develop emerging countries and marginalized populations (Hoffmann).

The social innovation perspective is probably the path through which upcoming solutions can be developed, aiming at socio-environmental impacts that can, in fact, cause profound social changes. Social innovation can be defined as innovative activities and services motivated by the objective of satisfying a social need and are mainly disseminated by organizations with a social purpose (Mulgan, 2006). In other words, these are innovations whose efforts are channeled, especially, towards solving issues that afflict humanity (Murray, Caulier-Grice, & Mulgan, 2010). Discussions on this specific type of innovation received special attention in the last decade, regarded as an alternative to the pressure of socio-environmental issues.

States have insistently attempted to consider social and environmental impacts in development initiatives: (a) European proposals of the so-called “Green New Deal”, (b) resilience

strategies proposed by cities that are part of the 100RC network, which includes 100 cities that seek to strengthen and prepare themselves for the current social and climatic challenges, etc. These solutions have been stimulated by the market with new green investments called ESG (Environmental and Social Governance), showing that investors are focusing on organizations guided by a transparent and ethical governance that comply with basic environmental and social requirements.

Certainly, these new demands from social actors such as governments, companies and the financial market itself call for the construction of a new knowledge. To ensure the future of the planet and its inhabitants, it is imperative to develop research that allows a different vision, as well as changes in behaviors, public policies and management practices. For decades, the need for behavioral change has been discussed, along with coping measures from many social actors, (scientists included), to review development models based exclusively on the commodification of nature. The moment urges for solutions that consider socio-environmental issues a criterion for a generalized impact of scientific research, turning it into a common cause for all with the future of the current and the next generations.

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Authorship

Andréa Cardoso Ventura

Postdoctoral researcher in management from the School of Management at Federal University of Bahia. Coordinator of the Governance for Sustainability and Low Carbon Management Research Group. Coordinator of the Urban Resilience of the Salvador Panel on Climate Change Thematic Chamber. Associate Editor of the Organizações & Sociedade Journal for the subject: Organizations, Environmental Management and Sustainability. Researches and publishes on climate change, social technologies and climate and urban resilience.

Email: andreaventurassa@gmail.com

ORCID: https://orcid.org/0000-0002-4371-632X

Eduardo Paes Barreto Davel

Ph.D. in management from École des Hautes Études Commerciales de Montréal (Canada), with a postdoctoral research in Management from Nova School of Business and Economics at Universidade Nova de Lisboa (Portugal). Professor at the School of Management at Federal University of Bahia, Brazil. Editor-in-chief of the Organizações & Sociedade Journal. Researches and publishes on cultural entrepreneurship, creative process management, teaching, methods, learning, culture, and aesthetics in organizations.

Email: davel.eduardo@gmail.com

ORCID: https://orcid.org/0000-0003-0610-6474

Authors' contributions

First author: conceptualization (equal), investigation (equal), writing of the original draft (equal).

Second author: conceptualization (equal), investigation (equal), writing of the original draft (equal).

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