

## OVERCOMING CHALLENGES IN THE EIA: ENVIRONMENTAL SCIENCE STUDENTS IN ARGENTINA

ID 22 Author: Verónica Giberti | Co-author(s): Daniela Picardi

Research and teaching session on Impact Assessment in Higher Education

### Summary:

ID 22 Author: Verónica Giberti | Co-author(s): Daniela Picardi Session Research and teaching of Impact Assessment in Higher Education Summary: The analysis of two decades of teaching in environmental sciences, incorporating environmental management and more specifically Environmental Impact Assessment (EIA) in the Environmental Sciences program at the FAUBA, reveals significant evolution gradually adapting to professional demands and environmental challenges. It is observed that environmental management and more specifically Environmental Impact Assessment (EIA) in the Environmental Sciences program at the Faculty of Agronomy, University of Buenos Aires (FAUBA), reveals significant evolution, gradually adapting to professional demands and environmental challenges. It is observed that environmental management has gained greater relevance, reflecting a decrease in the gap between science and environmental management. It is necessary to emphasize the need to strengthen interdisciplinary integration and collaboration between both fields to effectively address current and future environmental problems.

### Introduction and Development

Environmental sciences are dedicated to the study of natural and human systems, analyzing the interactions between them and developing solutions to protect and preserve the environment to contribute to a sustainable future for future generations.

Furthermore, they have an interdisciplinary approach as they integrate knowledge and perspectives from various areas of study such as biology, chemistry, geology, ecology, sociology, economics, and politics, to name a few. (Simón Bolívar University, Mexico, 2023)

Environmental education is a process that enables individuals to gain a deeper understanding of environmental issues and acquire the tools to make informed and responsible decisions. (United States Environmental Protection Agency, 2023). Analyzing the training in Environmental Sciences and environmental management, including the Environmental Impact Assessment in the Bachelor's Degree in Environmental Sciences at the Faculty of Agronomy, University of Buenos Aires, over the past 20 years, along with the perceptions of its teachers and graduated professionals, helps us understand the role that this profession plays in our country and globally

As an introduction to the topic, we want to mention that the birth of the program in 2003 was preceded by the enactment in 2002 of the so-called General Environmental Law, an important milestone in Argentine environmental legislation that has provided a framework for environmental management and protection at the national level. This law establishes in its article 22 that any work or activity that may generate significant negative effects on the environment, the quality of life of the population, or the natural and cultural heritage is subject to an environmental impact assessment and has been, to date, the minimum budget for EIA at the national level. (Law 25.675, 2002)

The program emerges as a non-minor issue, given the characteristics of Argentina's economy, largely dependent on the country's agricultural production, in one of the most important Faculties of Agronomic Engineering. In the beginning, the structure of the environmental program shared common bases with Agricultural Engineering and differed with an environmental focus in its second stage with a clear agricultural bias, which has been changing over 20 years.

In these 2 decades, three adjustments to the program's curriculum have occurred (2003, 2008, and 2017), and more than 600 professionals have graduated. Each plan evolved in its contents and adapted with the aim of complying with solid bases of research and management in response to changing environmental, social, and economic needs.

Already in 2008, it began to strongly differentiate from the predominant program (Agronomy), proposing a basic trunk much more focused on the environment and subsequently specific elective subjects. The offer of these electives increased, with a clear increase in the number of subjects associated with environmental management, providing options for students in their search for orientations.

The book "Research in Environmental Sciences" published in 2017 by FAUBA synthesizes more than a decade of reflections on the complexity of environmental issues. It highlights the role of Environmental Impact Assessment (EIA) as a key tool to bring together different competencies in environmental management and research (Plencovich, M. C., Vugman, L., & Cordon, G., 2017). In this context, the 2019 article "Bridging the gap between science and environmental management" highlights the need to overcome the division between scientific research and practical environmental management, emphasizing the importance of an interdisciplinary approach that integrates scientific knowledge into environmental management practices.

From my experience relating these two worlds, closer collaboration would allow a faster and more efficient transfer of scientific knowledge to practice, improving the quality and relevance of environmental solutions. Additionally, feedback from consultants to academia would generate research lines towards areas of critical need, promoting applied studies that promote direct positive impacts on environmental management. This is where the importance of building bridges between both parties lies.

Already in 2020, as a result of this process, the Environmental Management Area of the Faculty was created, with the subject Environmental Impact Assessment being a core part of the development of the space

In 2023, the National Interuniversity Council issued Resolution 175/23, highlighting the relevance of professionals in Environmental Sciences and other related careers in public well-being. The resolution urges to include these careers in article 43 of the Higher Education Law, requiring that the study plans meet standards defined by the Argentinian Ministry of Education, Science and Technology . This guarantees that graduates are prepared to face responsibilities that directly affect the health, safety and well-being of the population. The resolution highlights the importance of environmental management in general and the Environmental Impact Assessment (EIA) in particular, as an essential competency in this context (National Interuniversity Council, 2023), indicating it specifically through the professional activities reserved

Professional Activity Reserved according to Art. 43	Link with EIA
Design, plan, direct and certify sustainable environmental management systems	Post-EIA planning and management for environmental management systems
Design, plan, direct, supervise and certify comprehensive management plans, programs and projects for the conservation and/or recovery of habitat and natural resources	Environmental management plans
Design, plan and direct environmental assessments	Central in EIA for conducting the environmental impact assessment process
Certify methods and instruments for diagnosis, monitoring and evaluation of environmental sustainability	Essential in EIA for the validation of the methods used in the analysis of environmental impact

The powers of art. 43 reflects the core skills and responsibilities of professionals carrying out EIA, ensuring that they have adequate training and practice to carry out effective and reliable assessments.

To evaluate the perception of graduates, a survey was conducted with 323 graduates from the 2003, 2008, and 2017 study plans, on the occasion of the 20th anniversary of the Environmental Sciences degree. One key question in this survey focused on identifying areas of expertise essential to their current activity that were not addressed during their studies.

The responses highlight a predominance in the approach towards environmental management. It is evident that graduates consider environmental management and EIA not only as fundamental areas in their current work, but also as areas that could be addressed with greater emphasis during their training. (Aguar M., Bargiela M., Camerero G., Nasta L., Carboni L. & Dieguez H., 2023).

In addition to this study, the FAUBA Environmental Management Area conducted interviews with graduated professionals, many of whom have focused their final work on EIA or environmental management issues. Their responses highlight the importance of training with a systemic approach and a generalist vision, which allows them a comprehensive understanding of the interrelationships between environmental components and facilitates informed decision-making in complex projects. They have highlighted the capacity for interdisciplinary work and the effective development of their professional practice in EIA, both in the public and private consulting spheres. They coincide with the university's survey for the 20 years of the degree, highlighting the need for greater integration of environmental management and EIA in academic training, suggesting that its approach from the first years of the degree is essential (Area of Environmental Management, 2023).

Added to this consultation is the opinion of the teachers, some of whom have been and are the Directors of this career, many have clearly expressed that they consider the inclusion of

environmental management and the Environmental Impact Assessment (EIA) in the curriculum of Environmental Sciences students of high relevance, due to the integration of knowledge that occurs and the development of key competencies for professional life. They point out that this comprehensive training has a positive impact on the preparation of students. They consider that the skills acquired in environmental management are crucial for the country's progress, contributing to national development aligned with actions aimed at reducing and mitigating climate change and promoting environmental, economic and social sustainability, in line with the internationally agreed Millennium Goals. (Environmental Management Area, 2023)

## Conclusions

In the last 20 years, the Environmental Sciences career has experienced positive evolution, and a decrease in the gap between science and environmental management has been observed. However, it is still necessary to build bridges to establish a virtuous bond between parties. Consulting benefits from the data provided by science, while science must identify and address real needs. The principles of good practice in Environmental Impact Assessment (EIA) highlight the need to apply the best practical science, using appropriate methodologies and techniques to investigate problems. Furthermore, they highlight the importance of an interdisciplinary and credible approach in the process. (International Association for Impact Assessment & Institute of Environmental Assessment, UK, n.d.), which is only feasible through collaboration and teamwork

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