



Good practices: experiences and challenges- Unsam, Argentina

José Barbero^{1*}, Tamara Werhun Chomik², Lovisa Ericson³, Daniel Alvarez⁴

¹ Transport Institute, Universidad Nacional de San Martín (UNSAM), Martín de Irigoyen 3100, postal code B650, General San Martín, Buenos Aires, Argentina.

² UNSAM, General Secretariat.

³ UNSAM, International Office.

⁴ UNSAM, Transport Institute.

*corresponding author: barbero.jose.a@gmail.com

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Abstract. The impact of university activities on the environment should be studied and managed based on the constant evaluation of real consumption needs, on the use of reusable or recyclable resources and on the encouragement of an active and participatory role in terms of care and improvement of the environment (physical and social) through responsible use.

This is a challenge that requires the commitment of the entire university and involves a continuous process of awareness-raising among students, teachers, researchers and staff.

In 2016, UNSAM the National University of San Martín (*Universidad Nacional de San Martín*) conducted a study on mobility in its main campus "Miguelete", which covers an area of 20 hectares. Subsequently this and other works and analysis were systematized in the "Best Environmental Practices Guide" made in 2019 and approved by the Superior Council of the UNSAM. This Guide aims to provide tools to make changes in habits and new practices to minimize the impacts that the university itself generates on the environment.

The objective of the proposed presentation is to share with other universities the common challenges and some actions to configure a comprehensive policy that combines and promotes economic, social and environmental sustainability within the framework of the 2030 Agenda.

Keyword:

Good environmental Practices/ Sustainable University Campus/ Sustainable University Mobility/SDGs/Participative approach

1. Role of Universities in implementing the SDGs

The high concern for environmental crisis and climate change in a global level, has been attended by international organizations such as the OECD (Organization for Economic Cooperation and Development), UNESCO (United Nations Educational, Scientific and Cultural Organization) and the main multinational companies participating in the Summit of Leaders of the Global Compact of the United Nations. In 2015 United Nations lead agency on international development, UNDP works with main world leaders agreed on the Sustainable Development Goals (SDGs), also known as the Global Goals, as a universal call to action for the next 15 years.

The 17 SDGs are integrated to a development that balances social, economic and environmental sustainability. These objectives have specific goals linked to eradicating poverty, protecting nature, guaranteeing access to basic services (water, electricity), guaranteeing food security, achieving gender equality and ensuring access to inclusive, equitable and affordable education. quality, among others (fig. 1) [1].



Figure 1. The 17 SDGs

In this regard, universities have a key role in implementing actions to reach the aforementioned goals. For instance, an interesting line of action is that universities can include the SDGs in their actions and implement them in an integrated way. Perhaps the most illustrative case of this are the SDSN (Sustainable Development Solutions Network) and the ACTS (Australian Campuses Towards Sustainability) which have provided the guide *“How to start with the SDGs in the universities”* [2].

Through the exchange of experiences, this guide provides a source of cases of analyzing current situations, developing leadership capacities and identifying priorities, opportunities and weaknesses, on incorporating the SDGs into strategies.

It also suggests that to manage the links between universities, workshops can be held selecting only certain SDGs and correlating them with each other to stimulate research and provide educational opportunities, at the same time as a contribution to the sustainability of the institution.

According to a report carried out in 2018 by the Ibero-American General Secretariat (SEGIB)[3], universities have a leading and key role in terms of the dissemination and implementation of the 2030 Sustainable Development Agenda and the lines of action to collaborate in the realization of the Sustainable Development Goals (SDGs). The task of training experts in research and innovation committed to the theme of the 2030 Agenda depends on them and will be promoters of multisectoral alliances, required for the implementation of the SDGs.

2. Good Environmental Practices in Argentina

In Argentina, several state agencies have published guidance to promote recommendations for the efficient use of natural resources, called “Manual de Buenas Prácticas Ambientales” (“*Good environmental practice manual*”).

These types of guidelines are generated to raise awareness about preserving and caring for the environment, and how these measures can generate innumerable environmental, social and economic benefits and contribute to reducing the ecological footprint.

The knowledge of good environmental practices implemented by successful institutions can become a working method that guides day-to-day actions and generates innovative proposals. In addition, we must understand that they are not a *recipe book*: the result depends on multiple factors and conditions, according to trends in economic, political, cultural, technological, demographic and environmental matters.

The first partial conclusions would show that it is necessary to know the characteristics of the institutions, knowing their substantial activities are and the eventual agents (like suppliers and visitors) that could take an interaction with the rest of the actors (meaning students, administration and services personnel, university professor and researchers) in order to develop a strategy that allows integrating these aspects with the recommendations related to sustainability.

Expanding the concept “good environmental practices” constitute a basis for the implementation of a more greedy and even comprehensive concept: the eco-building. The institution must consider complementary alternatives at the level of infrastructure and engineering of buildings such as the creation of terraces and green walls, the installation of solar panels for heating water or generation of electrical energy, the installation of luminaires with motion sensors or photoluminal sensors, and rainwater irrigation systems. In Argentina there are several manuals about these terms, but they refer to activities related to energy production, administrative procedures in national offices, restaurants, bars, and the textile productive sector. [4,5,6]

In the case of local examples, there is no similar institution of higher educational level that presents a guideline for good environmental practices, which makes our University a pioneer university in this matter.

3. About UNSAM

UNSAM, acronym for Universidad Nacional de San Martín, is an Argentine public state university founded in 1992, and it has become a leader in higher education, research, cultural development and social transformation. More than a hundred undergraduate and graduate programs are offered in a variety of fields, which include the following: 1) Science and Technology, 2) Humanities and Social Sciences, 3) Arts, and 4) Other areas.

The main campus (*Campus Miguelete*) is built around former railway lines and train repair shop buildings, and it has become a privileged space for teaching, research, cultural development and social interaction among members of UNSAM’s community.

It has developed strong, research-led partnerships with a range of leading universities in the world: UNSAM has signed nearly 400 international agreements, which have resulted in various research projects, as well as students and teachers’ exchange programs.

4. Good Environmental Practices at UNSAM

In 2018, the General Secretariat of UNSAM began an **energy efficiency initiative**, within the framework of the Program for the Rational and Efficient Use of Energy (PROUREE) in Public Buildings, which aims to reduce consumption levels in the buildings of the National Public Administration.

Then an internal audit of the University suggested the adoption of “*UNSAM Good environmental practice manual*”, which is a public document that includes reliable information on the environmental behavior of the institution and it was constituted as an instrument of environmental communication and information, approved by the Superior Council of the University in the 10th Ordinary Meeting December 20 of 2019 [7].

The principal objective of this document is to drive changes within the UNSAM Community that involve a change in attitude and behavior in daily activities, promoting a friendly relationship with the environment that can also be reproduced in other areas, such as in their own homes.

The concepts and recommendations are very useful and simple to apply, being able to generate very good and fast results but the challenge requires an active commitment, being a continuous process of awareness among students, teachers, researchers, administrative and services personnel.

The document has six types of users defined according to the activities that each one performs: educational community, laboratories and health centers, offices, maintenance tasks, infrastructure and information technology, dining rooms, and sustainable purchasing and contracting.

Among the topics covered are: waste management, document digitization, the use of rechargeable items, caring for resources such as electricity and water, and suggestions related to transportation and noise. It also includes recommendations on building maintenance, electronic waste, the management of compostable waste in dining rooms and the possibility of incorporating sustainable criteria when purchasing goods and services [8, 9].

The process of the *UNSAM Good environmental practice manual*, included a period dedicated to the review with a participatory approach from different stakeholders of the University, where they were invited to give their visions and share previous experiences. Interviews were also conducted to find out how they used the resources, their perception regarding issues related to environmental care and improvement measures that were possible to implement. The first actions were carried out in 2020, through volunteer work of “Environmental Promoters” oriented to students of all university careers to collaborate in actions of diffusion of the recommendations.

Prior to this institutional milestone, in 2016, based on an initiative of UNSAM’s Transport Institute (IT), the Sustainable Mobility Study of the Miguelete Campus was conducted which analyzed the mobility situation from/to and within the campus and it was an important part of transport recommendations [10].

The role of the IT has been very relevant for understanding, analyzing and proposing actions both on the university campus itself and for the implementation of public policies and is an example of good practice that we would like to share in the following sections.

5. UNSAM's Transport Institute: sustainable mobility- contributions and recommendations

Sustainable mobility is a transfer model that prioritizes raising the quality of life and collective well-being, as well as the creation of comfortable public spaces in favor of human coexistence. According to the definition of the World Business Council for Sustainable Development (WBCSD), sustainable mobility is capable of satisfying the needs of society to move freely, access, communicate, commercialize or establish relationships without sacrificing other current basic human or ecological values or of the future.

Modern cities are analyzing their own urbanization model and taking initiatives with actions aimed at solving issues related to poor air quality, noise, use of space, accessibility, gas emissions and energy consumption, all problems that also contribute to the climate crisis.

These kinds of actions have an impact on the protection of pedestrians, cyclists, people with reduced mobility, valuing the time of the people employed when traveling, internalizing the socio-economic costs of the means of locomotion and guaranteeing access to public or non-motorized transport.

The University has increased its enrollment at an average rate of 10% per year, this growth generated the need to create new infrastructure and modes of transportation, both internal and in the surrounding areas, which somehow meet the needs of the educational community.

Given the location of the UNSAM Campus, its distance from the commercial and administrative center of the Municipality of San Martín, where the route of different public transport (bus and train) is concentrated and this has generated different types of inconveniences, especially in the night time slot, which are related in a way direct with the difficulties of accessibility to public transport that the university area presents.

For this reason, in order to study this problem and develop proposals for improvement to present to local authorities, the University carried out a study to find out how students, teachers and administrative staff make their trips to the Miguelete Campus in order to carry out a adequate mobility planning and generating concrete accessibility solutions for the UNSAM community.

According to the data collected through surveys, it was possible to determine the percentage of attendees, depending on whether they were students (*alumno/a*), researcher (*investigador/a*), staff (*no docente*) or professor (*docente*):

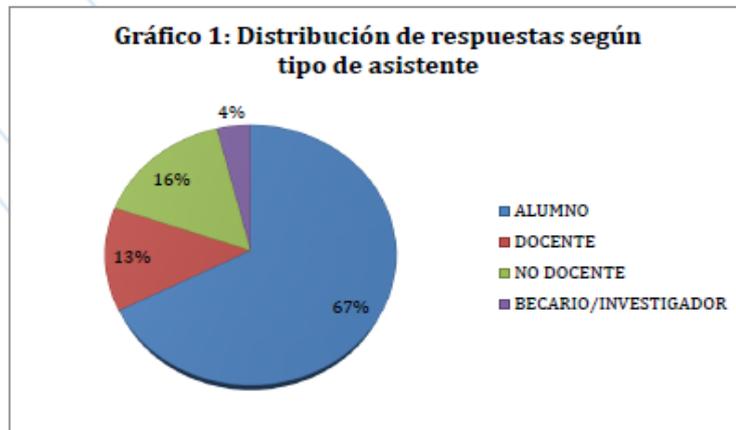


Figure 2. Source: Campus Mobility and Accessibility Survey. September 2016

The modal distribution of the sample reflects that 70% of people travel to campus by public transport (mostly collective transport and by rail), followed by 23% who travel by private car. Likewise, 1% access by taxi or remise and 1% by motorcycle. Of the "non-motorized" trips, 3% are carried out by bicycle and 2% entirely on foot.

Finally, the study analyzes the influx of people to the Campus, considering three accesses throughout the day. The results of Fig. 3 show that four peaks are observed, being the largest of them at 11 a.m. in *Old Irigoyen Street* access. The other peaks occur at 4 p.m. at each entrance, and subsequently at 8 p.m. the *Old Irigoyen Street* access is the main one, but at 9:00 p.m. it is the access of *France Street*.

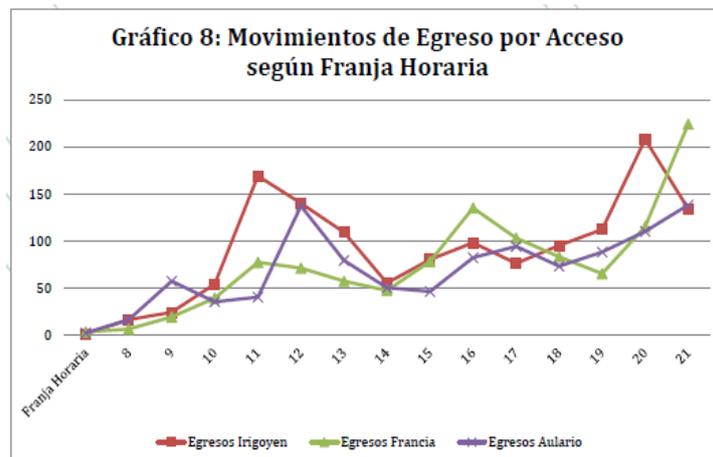


Figure 3. Income comparison in the three income entrances of Miguelete Campus. Source: IT- UNSAM based on counts by security cameras, 2017

After all the contributions from the Survey, the mobility initiatives in the UNSAM Campus include:

Adaptation of public transport routes- Intervention before the authorities to modify public transport routes so that they pass in front of the campus. It is necessary to increase the number of routes of urban lines around the Campus.

Shuttle Service- The University has its own bus service linking the campus with neighbor key nodes, such as train stations. It is important that users access both services.

Internal electric cart - Electric vehicles circulating on campus inner paths.

Internal trails- Development of a set of trails to ensure accessibility to all buildings. It should have lighted paths, especially for attendees who have some type of disability and improve the parking area.

Bicycle utilization promotion- Promoting the construction of bike lanes outside the campus, facilitating internal circulation and generating facilities to park bicycles safely (work in progress).

6. Contribution of UNSAM's Transport Institute to the national climate change strategy

There are several projects in progress that promote the development of policies:

Several studies on reduction of GHG emissions in urban mobility and freight transport. Particularly modal shift from trucks to railways, savings within the trucking industry, and the analysis of alternative energy sources for urban buses.

Support to the national government in the preparation of the transportation components of the Nationally Determined Contributions, by basis for a transport and climate change national strategy, including mitigation, adaptation and carbon pricing instruments.

Responsible for the transport component of the *Promoting low-carbon and climate resilient development pathways for Argentina – ProCLIM-AR*, financed by the German Government (BMU-IKI), starting soon.

7. Summary/ Concluding Remarks

The report by Transport Institute about UNSAM mobility, analyzed the dynamics of pedestrian and vehicular traffic flows in the three main entrances of the Miguelete Campus and based on this, the main actions to consider were proposed, such as promoting the sustainable mobility of students and workers, by virtue of best environmental practices and integrate academic knowledge in community projects.

On the other hand, and considering the relevance of sustainable university mobility, it is recommended the creation of an intra-institutional space on accessibility that addresses the problem from an integral perspective in the design of strategies, suggesting a *Mobility and Accessibility Observatory*.

In summary, both the Good Environmental Practices Guidelines and improving the conditions of sustainable university mobility in accordance with current trends requires that various management and academic areas, in conjunction with authorities, commit to strengthening the substantive functions of the university, considering the 2030 Agenda and the SDGs. and environmental education.

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