

UANL annual sustainability report

Volume 9, Issue 9
January – december 2026



UANL

UNIVERSIDAD AUTÓNOMA DE NUEVO LEÓN



VISIÓN UANL
2040





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Introduction

The transition toward sustainability represents one of the main challenges on the university agenda in Mexico and around the world. In this context, the Universidad Autónoma de Nuevo León (UANL) remains committed to strengthening responsible institutional management, recognizing the strategic role of higher education institutions in generating knowledge, innovation, and solutions geared toward sustainable development.

This Annual Sustainability Report details the progress, results, and actions promoted by the UANL to consolidate university management aligned with the UANL 2040 Vision and the Sustainable Development Goals of the 2030 Agenda.



Among the main actions carried out in 2025, those aimed at the efficient use of water and energy stand out, through the modernization of water infrastructure, lighting, and high-efficiency HVAC systems. These actions made it possible to optimize resource consumption, reduce greenhouse gas emissions, and create more efficient, safe, and comfortable university spaces for the university community.

In the area of climate action, the UANL continued to promote programs for environmental monitoring, tree planting, ecological restoration, and biodiversity conservation, contributing to the sustainable management of natural capital under institutional stewardship and strengthening the role of university campuses as strategic spaces for environmental protection and social well-being.

In the area of sustainable mobility, programs such as the TigreBus were strengthened, and new strategies were implemented to improve transportation conditions for students and university staff. These actions helped reduce the environmental impact associated with transportation and promote safer, more accessible, and more people-centered university environments.

One of the most significant aspects highlighted in this report is the increase in student participation in projects, campaigns, and initiatives related to sustainability, social responsibility, and environmental protection, thereby strengthening a university culture based on shared responsibility and collective participation.

ALikewise, the document highlights the progress made in governance, social responsibility, gender equity, transparency, and digital transformation, as well as the incorporation of tools based on Artificial Intelligence to strengthen analysis, decision-making, and institutional management processes.

As a result of these efforts, in 2025 the UANL ranked first worldwide in the Infrastructure and Equipment for Sustainability category of the GreenMetric World University Rankings, in addition to achieving 11th place in the overall ranking—which included 1,745 universities from around the world—and maintaining its position, for the ninth consecutive year, as the most sustainable university in Mexico.

While significant challenges remain, the strengthening of institutional capacities and the growing participation of students, faculty, and administrative staff are enabling steady progress toward the consolidation of a more sustainable, equitable, safe, and resilient UANL, for the benefit of its community and future generations.

Dr. med. Santos Guzmán López
President





About us

Mission

To educate high school graduates, technicians, and professionals who are competent, competitive, and innovative; socially responsible; fully aware of the regional, national, and global context; guided by principles and values; and committed to sustainable scientific, technological, and cultural development.

To generate timely, relevant, and significant contributions to the advancement of science, technology, innovation, and the humanities, and to the improvement of the level of human development in the society of Nuevo León and the country.

To disseminate and extend, as widely as possible, the benefits of culture, paying particular attention to its responsibility to maintain and strengthen ties with the community at large.



Attributes

- Autonomy
- Ethical conduct
- Academic integrity
- Global collaboration
- Critical thinking
- Diversity and inclusion
- University social responsibility
- Sustainability
- Analytical approach
- Legality
- Transparency, access to information, and accountability



Vision

“By the year 2040, the Universidad Autónoma de Nuevo León will be established as a public institution of academic excellence—inclusive, equitable, and humanistic—and an international leader in education, innovation, and cutting-edge research, preserving its autonomy, promoting university social responsibility and a culture of peace, and adopting emerging technologies and best practices in sustainable development to improve the quality of life and well-being of society.”



Values

- Truth
- Responsibility
- Justice
- Equality
- Peace
- Freedom
- Tolerance
- Solidarity
- Respect
- Honesty



Numbers



UANL Community



221,576 students



6,501 administrative staff



7,123 Faculty

Presence is
70%
of the municipalities
in the state of Nuevo León



The UANL provides educational services to students who come primarily from the **51 municipalities** of the state of Nuevo León and the states that make up the northeastern region of Mexico.

The UANL has academic infrastructure in **36 municipalities** in the state of Nuevo León.



Enrollment by gender:



52 %
women



48 %
men



Educational coverage

93
academic departments


36
municipalities

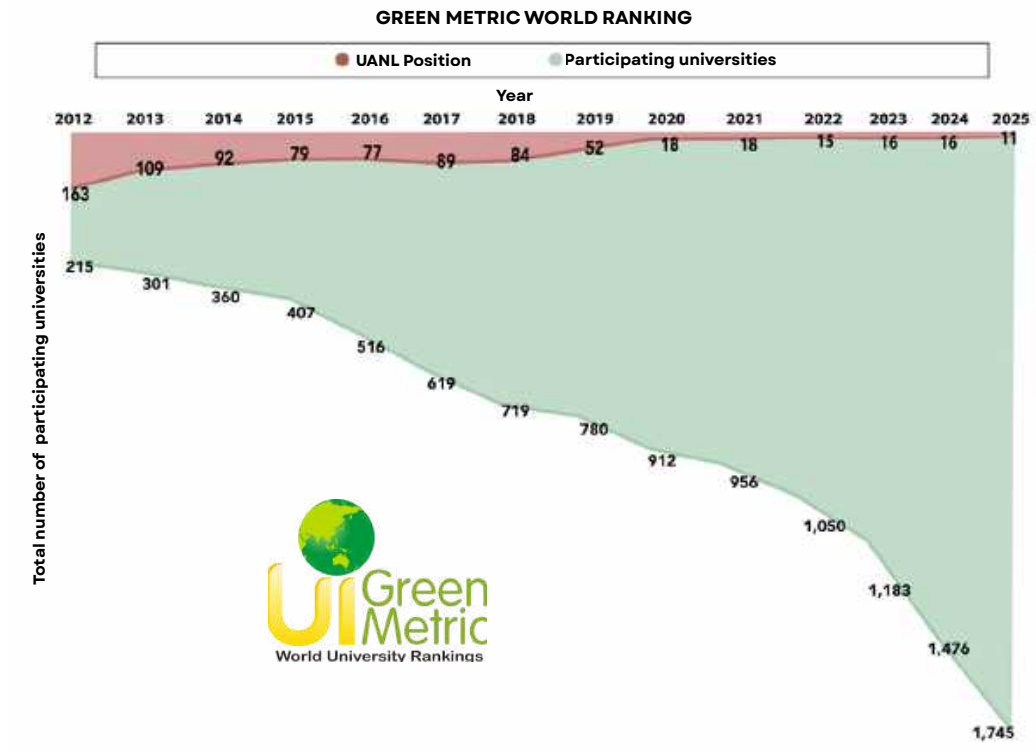

16
community centers


Specialized institution of higher education

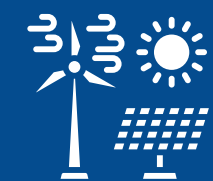


Green Metric World University Rankings

- **1st**
nationally (for the 9th consecutive year)
- **2nd**
Latin America
- **11th**
globally (out of 1,745 participating universities)



UANL's position in the Green Metric World Ranking indicators

					
Environment and infrastructure	Transportation	Education	Water	Energy and climate change	Waste
1	10	13	77	110	113



1st place worldwide in the Infrastructure and Facilities for Sustainability category



The recognition awarded to the Universidad Autónoma de Nuevo León (UANL) as the global leader in the Infrastructure and Equipment for Sustainability category of the GreenMetric World University Rankings for the year 2025 represents the result of an institutional strategy aimed at strengthening the efficiency and modernization of the university's infrastructure under sustainability criteria.

The measures implemented by the UANL to strengthen infrastructure and equipment for sustainability have helped improve vegetation-covered areas through proper planning of land use, open spaces, and environmental infrastructure. They have also promoted the protection of natural areas and the sustainable management of the university's green spaces.

These improvement initiatives have helped create spaces that are more comfortable, safe, and suitable for academic, research, and administrative activities, fostering better study and work conditions for the university community.





Educational Quality



83

internationally accredited educational programs.



297

national and international academic collaboration agreements.

Source: Academic Department and Report on activities carried out at the UANL for the year 2025.

There are a total of 99 undergraduate degree programs, of which 75% are accredited by national agencies

Source: Academic Department.

Academic Bodies (CA, for its acronym in Spanish)

CA: groups of faculty members who share one or more lines of research and application of knowledge in disciplinary or multidisciplinary fields.

Degree	Academic Bodies	ACs related to sustainability issues
Established	114	98
In the process of consolidation	76	62
In formation	58	45
TOTAL	248	205

83 % of the CA are related to sustainability issues.



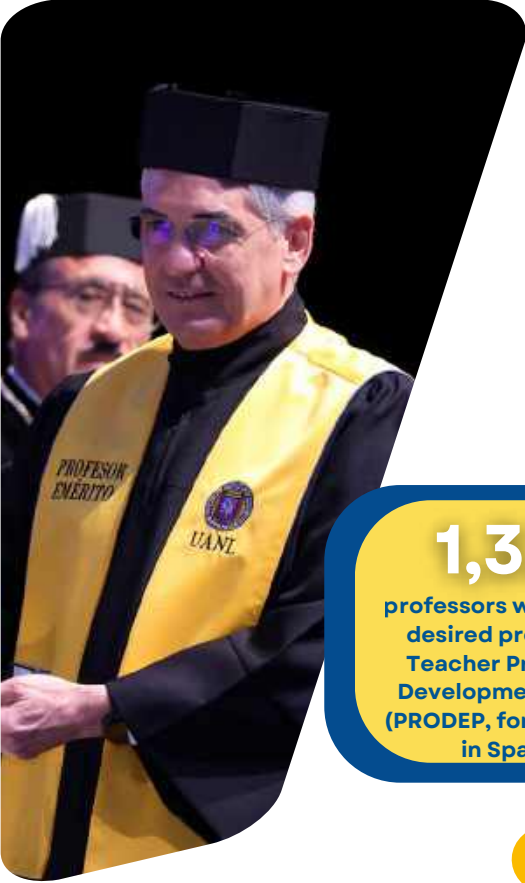
Educational Quality

Academic Qualifications

PROFESSORS	ACADEMIC DEGREE	MIDDLE-HIGHER LEVEL	HIGHER EDUCATION	TOTAL	
FULL-TIME	Bachelor's Degree	10	26%	29	74%
	Master's degree	644	42%	897	58%
	Specialization	6	3%	178	97%
	Doctor's Degree	125	8%	1,401	92%
	Subtotal	785	24%	2,505	76%
PART-TIME	Bachelor's Degree	2	8%	23	92%
	Master's degree	110	50%	108	50%
	Doctor's Degree	5	21%	19	79%
	Subtotal	117	44%	150	56%
COURSE	Bachelor's Degree	851	52%	801	48%
	Master's degree	631	38%	1,026	62%
	Specialization	8	30%	19	70%
	Doctor's Degree	34	12%	196	85%
	Subtotal	1,524	43%	2,042	57%
TOTAL		2,426	34%	4,697	66%

Source: Report on activities carried out at the UANL for the year 2025.

Awards for professors



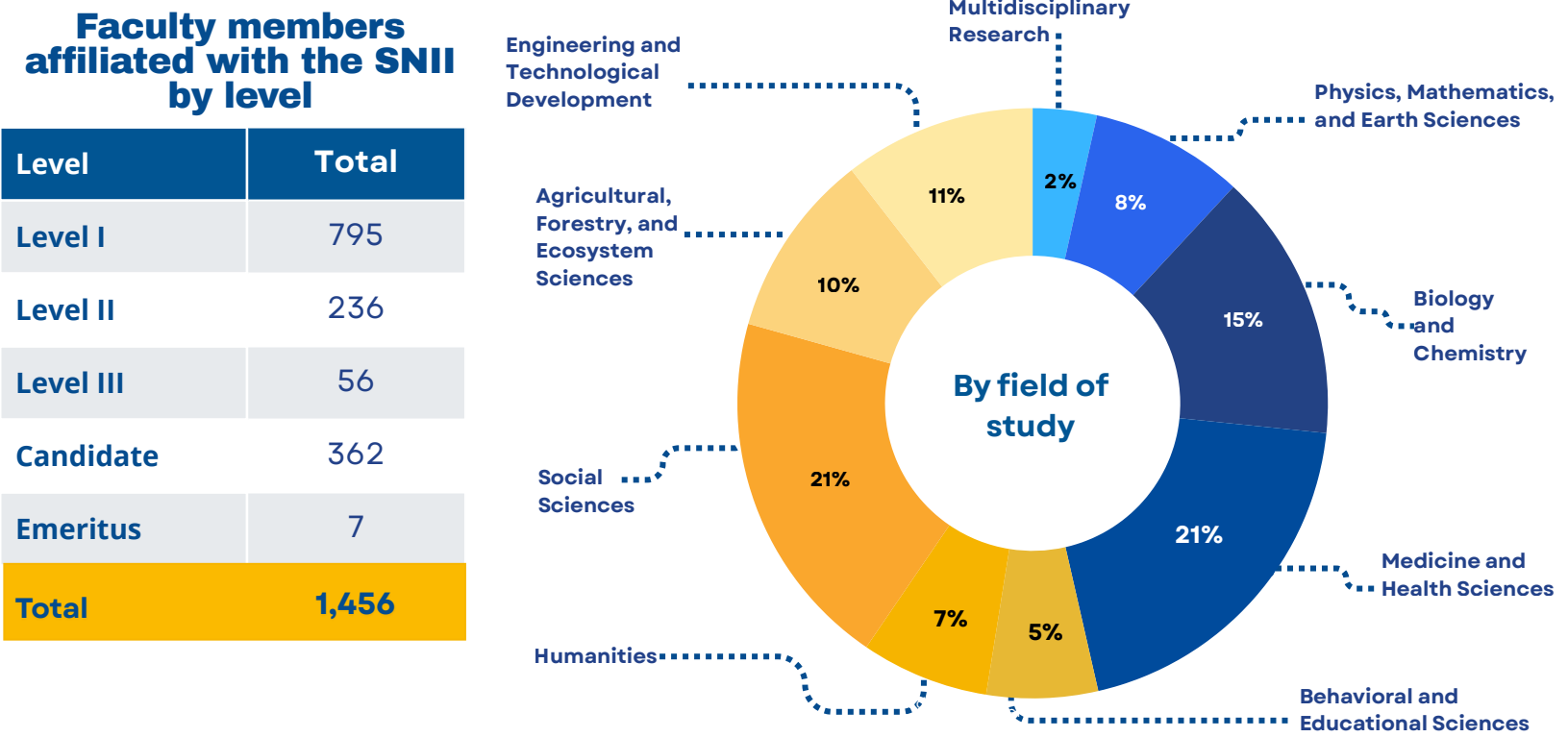
7,123 professors at the UANL



1,321 professors who meet the desired profile of the Teacher Professional Development Program (PRODEP, for its acronym in Spanish).

1,456 professors in the National System of Researchers (SNII, for its acronym in Spanish).

National System of Researchers (SNII, for its acronym in Spanish)



Source: Report on activities carried out at the UANL for the year 2025



Educational Programs by Broad field of academic training

Field No.	Broad Field of Academic Training	No. of Educational Programs Bachelor's Degree
1	Education	1
2	Arts and Humanities	15
3	Social Sciences and Law	15
4	Business and Management	17
5	Natural Sciences, Mathematics, and Statistics	12
6	Information and Communication Technologies	7
7	Engineering, manufacturing, and construction	19
8	Agronomy and Veterinary Medicine	4
9	Health Sciences	7
10	Services	2
Total		99

Source: Academic Department.





Educational programs accredited by national agencies

Accreditation	Bachelor's Degree	Graduate	Total
Educational programs	74	16	90

Source: Report on activities carried out at the UANL for the year 2025

Graduate-level educational programs (EP) by level within the National Graduate System

	Doctor's Degree	Master's	Specialization	Total
Programs by level of educational offering	36	53	58	147

Source: Academic Department



International Accreditation

67 internationally accredited graduate programs

- 19 first evaluation
- 48 re-accredited

Undergraduate and graduate programs with international accreditation

Educational level	Accredited
Bachelor's	45
Specialization	1
Master's	16
Doctor's Degree	5
Total	67

Graduate programs with internationally recognized quality

Academic level	Recognized
Specialization	1
Master's	8
Doctor's Degree	3
Total	12

Source: Report on activities carried out at the UANL for the year 2025





Educational offerings in alternative formats

Formart	Level of study			Total
	High School	Bachelor's Degree	Graduate	
Remote learning	1	0	0	1
Open mixed	1	0	0	1
Mixed online	1	0	0	1
Non-school-based (Community Centers)	1	0	0	1
Remote	0	7	9	16
Mixed	0	43	20	63
Totals	4	50	29	83

Source: Academic Department.





University for seniors program



It offers an educational and training alternative that allows older adults to develop their potential, engage in and share new social and cultural activities, and lead a healthy lifestyle.



Source: Inclusive Education Department.





Program for the inclusion of students with disabilities

The purpose of this program is to raise awareness among the university community regarding attitudes toward people with disabilities, promote their integration and adaptation to university spaces, and propose adjustments to the physical infrastructure to allow for their free movement throughout university facilities



Program Objectives:

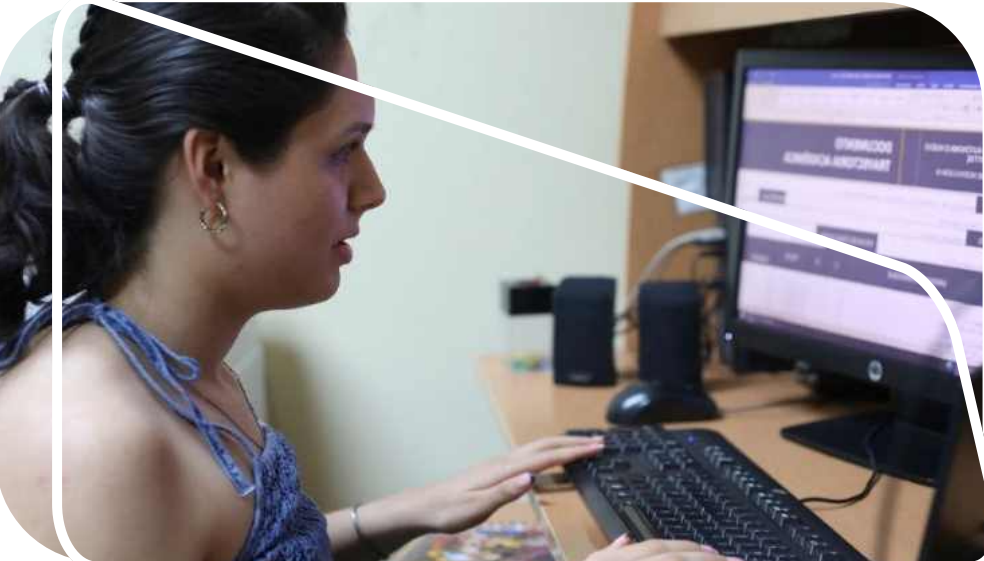
- ◆ To promote the inclusion of students with disabilities in the UANL's upper secondary and higher education settings.
- ◆ Design education, training, and professional development programs for faculty, administrative, and support staff regarding educational support for students with disabilities.
- ◆ Plan and coordinate the necessary academic and human resources programs, strategies, and actions to provide comprehensive support to prospective and/or current students with disabilities at the UANL.





Functions

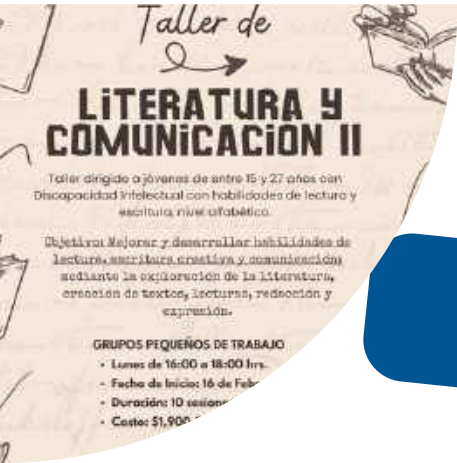
- ◆ Provide guidance and support to applicants seeking admission to the UANL during the placement process for upper secondary education and the selection process for higher education.
- ◆ Serve as a communication bridge between departments and students with specific educational needs and/or disabilities to support their academic retention.
- ◆ Deliver training courses and workshops on educational inclusion for faculty and administrative staff. Additionally, organize events that promote inclusion and are aimed at the university community and the general public interested in the topic.



Student population enrolled in the inclusion program.

Educational level	Number
Middle Higher	602
Higher	3,575
Graduate	60
Total	4,237

Source: Inclusive Education Department.




UANL

12° SIMPOSIO

"SALUD MENTAL Y NEURODIVERGENCIAS:"






UANL
UNIVERSIDAD AUTÓNOMA DE NUEVO LEÓN



Feria Integral de Bienestar e Inclusión

"Salud que une, diversidad que nos fortalece"

Registro



Entrada libre

 Miércoles 11 de marzo

 15:30 horas

 Sede: Centro de Internacionalización, UANL
ubicado en Av. Manuel L. Barragán No. 4904,
Col. Hogares Ferrocarrileros, Monterrey, N.L.

 Informes: teléfonos en oficina
81-83-29-42-70 y 81-83-29-40-00
exit 6677 y 6678



Types of disability by educational level

Type of disability	Middle Higher	Higher	Graduate	Grand total
Hearing Impairment (Hearing Loss)	6	29	2	37
Blindness	7	12	1	20
Huntington's disease	0	1	0	1
Hearing Impairments	12	83	2	97
Visual Impairments	266	2,090	32	2,388
Major Depression	5	42	0	47
Cognitive Development	1	10	0	11
Motor Development	33	446	13	492
Dyscalculia (Severe Difficulties with Mathematics)	3	6	0	9
Severe Intellectual Disability	1	1	0	2
Mild Intellectual Disability	2	2	0	4
Moderate Intellectual Disability	6	18	0	24
Lower Limb Motor Disability	13	40	0	53
Motor Impairment of the Upper Limbs	6	14	0	20
Multiple Motor Disabilities	6	17	0	23
Mental Disabilities	4	11	0	15
Neurological Disabilities	3	23	1	27
Dysgraphia (Difficulties learning to write)	1	1	0	2
Dyslexia (Difficulties with Reading)	13	42	0	55
Moderate to Severe Visual Impairment	13	48	0	61
Epilepsy	10	62	0	72
Multiple Sclerosis	0	7	1	8
Schizophrenia	2	4	0	6
Post-Traumatic Stress	1	5	0	6
Nonverbal Learning Disorders	0	1	0	1
Asperger's Syndrome	42	107	1	150
Deafness	5	6	1	12
Deafness	3	9	1	13
Eating Disorder	3	6	1	10
Bipolar Disorder	2	9	0	11
Anxiety Disorder	20	138	0	158
Communication Disorder (Expression and Comprehension).	0	1	0	1
Antisocial Personality Disorder	0	1	0	1
Unspecified Disruptive Behavior Disorder.	0	1	0	1
Autism Spectrum Disorder	33	76	1	110
Intermittent Explosive Disorder	0	2	0	2
Oppositional Defiant Disorder	3	1	0	4
Attention-Deficit Disorder	75	178	3	256
Learning Disorders	2	25	0	27
Grand Total	602	3,575	60	4,237

Source: Inclusive Education Department.

◆

Social assistance, community services, and volunteer program

PROJECT	PARTICIPANTS
Services of the University Health Center (CUS, for its acronym in Spanish)	47,566
UANL Volunteer Program	1,440
Activities to promote sustainability with student participation	10,750
Environmental Fair	630
Water Quality Monitoring and Detection of Biological Contaminants in Aquatic Environments	15
Forest Resource Inventories of University Departments	285
Tree-Planting Program for University Campuses and Facilities	120
Day of Action to Restore Natural Environments in Urban Areas	1,250
Wildlife Monitoring Program on Urban Campuses	146
Environmental Activities by the Directorate of Social Service and Professional Practices	117
Chain Hand - Multidisciplinary Student Brigade	300
Zero Hunger Collection	100
Total	62,719

Source: Report on activities carried out at the UANL for the year 2025, Secretary General and Sustainability Department.





UANL Culture



1,747

artistic and
cultural events
in 2025

306,874

in-person and
virtual
participants



Source: Report on activities carried out at UANL for the year 2025





Sports



UANL University Sports Program

203

sports activities in 2025

53,322

student athletes



ANUIES National University Championships 2025

520

participating
Students

22

sports
disciplines

196

medals won

*ANUIES (for its acronym in Spanish): National Association of Universities and Institutions of Higher Education.



Auténticos Tigres

Position	Event	Category
Champion	ONEFA	Senior
Champion	ONEFA	Intermediate
Champion	ONEFA	Junior

*ONEFA (for its acronym in Spanish): National Student American Football Organization
Source: Report on activities carried out at the UANL for the year 2025





◆ Sports

1

in college sports
nationwide since
2006



53

students in twelve
adapted sports
disciplines



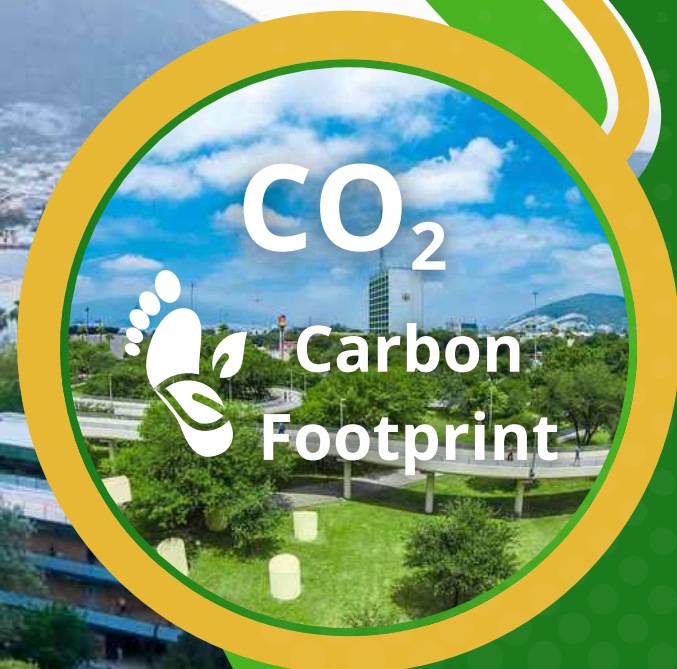


601

student-athletes in 104
national and 14 international
competitions

Source: Sports Department and report on activities
carried out at the UANL for the year 2025.





In 2025, UANL's per capita carbon footprint was:

83,132

metric tons*

In 2025, the UANL's carbon footprint was:

0.35

metric tons*

Source: Calculated using the methodology proposed by Carbon Footprint TMB (www.carbonfootprint.com)

Water and energy efficiency program



7.55 m³
per capita water consumption / year



439 kWh
per capita energy consumption / year

UNIVERSIDAD AUTÓNOMA DE NUEVO LEÓN

ANNUAL
SUSTAINABILITY
REPORT
2025



9
INDUSTRY,
INNOVATION AND
INFRASTRUCTURE





SUSTAINABLE INFRASTRUCTURE

The Universidad Autónoma de Nuevo León (UANL) currently consists of 26 colleges and 29 high schools, distributed across seven university campuses and 86 campuses located in 36 of the 51 municipalities of the state of Nuevo León, making it the most important institution of higher education in northern Mexico and one of the largest in Latin America, both in terms of student enrollment and the size of its infrastructure.

Five of its campuses are located in the Monterrey Metropolitan Area (University City, Health Sciences, Mederos, Agricultural Sciences, and Cadereyta), while the other two are in Sabinas Hidalgo and Linares. Most of these facilities are located in regions with arid and semi-arid climates, characterized by an average annual precipitation of 650 mm and an average temperature of 25 °C, with extremes exceeding 40 °C or dropping below 0 °C. These conditions pose significant challenges for the efficient use of energy and water.

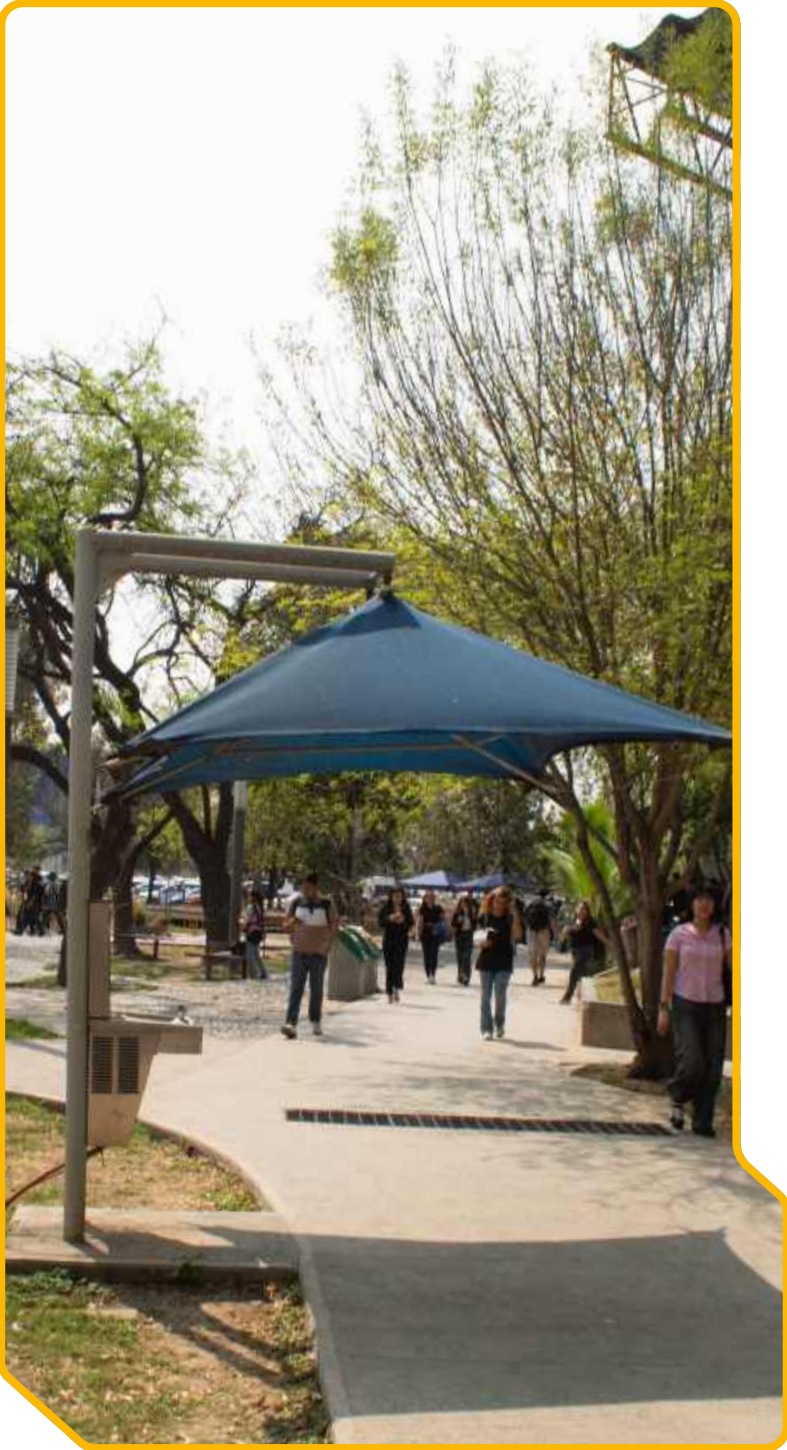




In terms of area, the UANL covers a total of 38,124,120 m², of which 36,928,153 m² are water-absorbing areas. The built-up area totals 1,195,967 m², while 20,679,766 m² are occupied by planted vegetation and 16,248,387 m² by forest vegetation. Furthermore, 96.8 % of the university's territory consists of open spaces, reflecting high potential for environmental conservation and the provision of ecosystem services.

In this context, the UANL has adopted an institutional sustainable infrastructure policy focused on the design, construction, equipping, and operation of university spaces according to environmental, social, and economic criteria. This policy aims to reduce environmental impact, optimize the use of natural resources, improve operational efficiency, and ensure safe, inclusive, and healthy environments for members of the university community.

As part of this strategy, the UANL has incorporated standards and best practices into its real estate development processes through technical guidelines issued by the Secretariat of Sustainability. These guidelines promote, among other actions, self-generation of energy through renewable sources, the use of high-efficiency HVAC equipment, thermal insulation of buildings, the use of natural light and ventilation, and the replacement of conventional lighting with LED technology.



Similarly, control systems such as motion detectors in indoor spaces have been implemented, along with the installation of energy-efficient displays. Regarding water, water-saving devices have been incorporated into sanitary and service facilities, in addition to promoting the expansion of rainwater harvesting areas and the use of technologies such as solar thermal plants for water heating.

The strategy also includes strengthening green infrastructure by increasing areas designated for parks and gardens, developing green roofs, and conserving the university's forest resources. Added to this is the implementation of comprehensive waste management and recycling systems, as well as the use of condensate water from HVAC systems for irrigating green spaces.

As a result of these actions, 100% of UANL's buildings now feature high-efficiency HVAC and lighting systems, which have generated significant savings in energy consumption and operating costs. Furthermore, these measures contribute to reducing greenhouse gas (GHG) emissions associated with university activities.

By implementing all these actions, the UANL is working to consolidate a sustainable infrastructure model that not only meets its operational needs but also strengthens its institutional leadership on environmental issues, positioning itself as a national benchmark in the sustainable management of university spaces.



All university buildings are equipped with energy- and water-efficient systems, which has made it possible to reduce energy and water consumption, as well as lower greenhouse gas (GHG) emissions.





CIUDAD UNIVERSITARIA CAMPUS

Location: San Nicolás de los Garza, Nuevo León, México

Campus Ciudad Universitaria



Area
95
hectares

FACILITIES AND SCHOOLS

- President's Office Building
- School of Architecture
- School of Biological Sciences
- School of Physical and Mathematical Sciences
- School of Chemical Sciences
- School of Public Accounting and Management
- School of Law and Criminology
- School of Civil Engineering
- School of Mechanical and Electrical Engineering
- School of Philosophy and Liberal Arts
- School of Sports Organization
- School of Social Work and Human Development





HEALTH SCIENCES CAMPUS

Location: Monterrey, Nuevo León, México



FACILITIES AND SCHOOLS

- School of Nursing
- School of Medicine
- School of Dentistry
- School of Psychology
- School of Public Health and Nutrition
- University Hospital

Area
29
hectares





MEDEROS CAMPUS

Location: Monterrey, Nuevo León, México

FACILITIES AND SCHOOLS

- School of Performing Arts
- School of Visual Arts
- School of Communication Sciences
- School of Political Science and International Relations
- School of Economics
- School of Music
- Institute for Social Research
- Center for Foreign Language Studies and Certification
- Center for Research, Innovation, and Development in the Arts
- University Theater
- University Radio and Television Facilities



Area
194
hectares





LINARES CAMPUS

Location: Linares, Nuevo León, México

FACILITIES AND SCHOOLS

- School of Forestry Sciences
- School of Earth Sciences
- Academic Extension of the School of Public Accounting and Management
- Academic Extension of the School of Law and Criminology
- Academic Extension of the School of Philosophy and Arts
- Academic Extension Program of the School of Mechanical and Electrical Engineering
- Academic Extension Program of the School of Sports Management
- Academic Extension Program of the School of Nursing
- Academic Extension Program of the School of Physical and Mathematical Sciences
- Agricultural Production Research Center
- Bosque Forest Reserve – School

MAPA CAMPUS LINARES



Bosque Escuela



Area
2,042
hectares





SABINAS HIDALGO CAMPUS

Location: Sabinas Hidalgo, Nuevo León, México

CAMPUS SABINAS HIDALGO



Area
20
hectares

FACILITIES AND SCHOOLS

- School of Accounting and Public Management
- School of Law and Criminology
- School of Nursing
- School of Psychology





AGRICULTURAL SCIENCES CAMPUS

Location: General Escobedo, Nuevo León, México



FACILITIES AND SCHOOLS

- School of Agronomy (with a branch in Marín)
- School of Veterinary Medicine and Animal Science (with a branch in General Bravo, N.L.)
- Agricultural Research Annex (General Bravo, N.L.)

Area
1,417
hectares





CADEREYTA CAMPUS

Location: Cadereyta Jiménez, Nuevo León, México



FACILITIES AND SCHOOLS

- Academic extension of the School of Public Accounting and Management
- Academic extension of the School of Law and Criminology
- Academic extension of the School of Nursing

Area
15
hectares



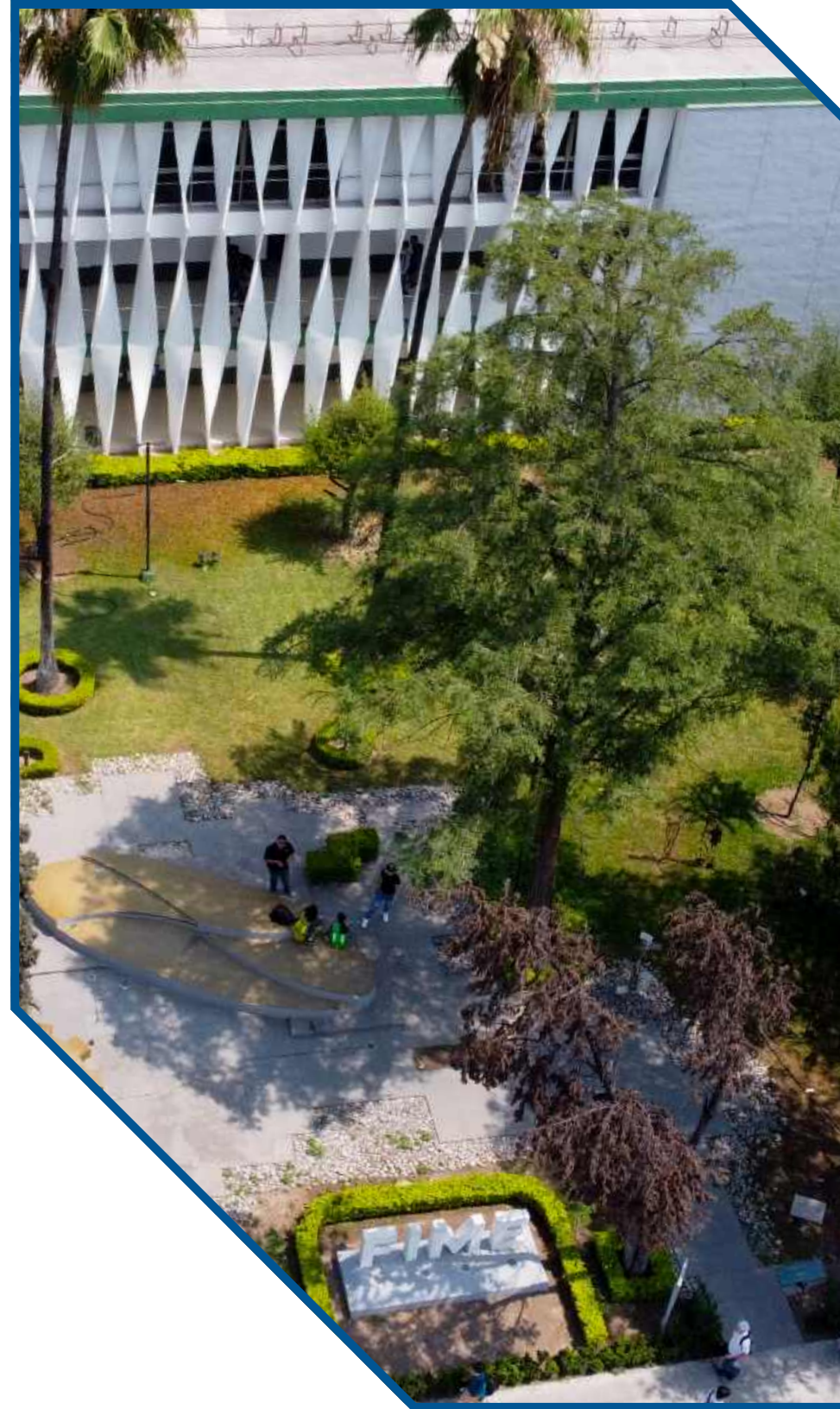


GREEN INFRASTRUCTURE ON CAMPUS

The green infrastructure of the Universidad Autónoma de Nuevo León (UANL) is a strategic component of its sustainability model, integrating areas covered with natural and planted vegetation across its university campuses. These spaces not only serve an aesthetic and recreational purpose but also provide environmental, social, and educational benefits that enhance the quality of life for the university community.

The green spaces at UANL contribute significantly to improving air quality by capturing carbon dioxide (CO₂) and producing oxygen. They also help regulate temperature, reduce direct solar radiation, and mitigate the effects of urban heat islands. Another key benefit is rainwater harvesting, which helps recharge aquifers and reduce surface runoff, particularly in a climate characterized by arid and semi-arid conditions.

From a social perspective, these spaces promote the physical and emotional well-being of students, faculty, and administrative staff. The presence of gardens, parks, and wooded areas facilitates recreation, leisure, and social interaction, while also helping to reduce stress and improve the environment for learning and academic work.

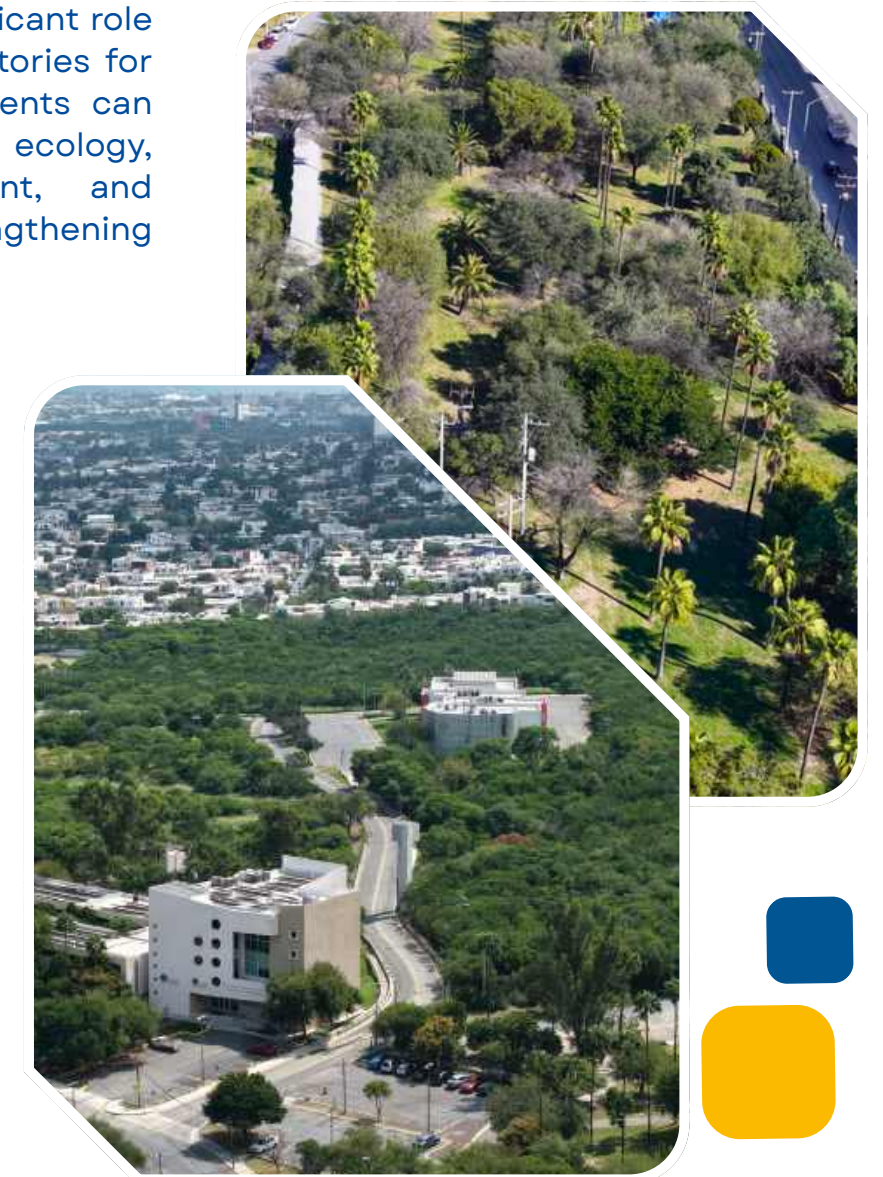


From an ecological standpoint, the UANL's green infrastructure serves as a refuge and habitat for various species of native flora and fauna, supporting biodiversity conservation within urban settings. These spaces help maintain essential ecological processes and strengthen biological connectivity between natural areas, which is crucial in the face of urbanization and landscape fragmentation.

Additionally, university green spaces play a significant role in academic education, serving as living laboratories for teaching and research. In these spaces, students can engage in practical activities related to ecology, sustainability, natural resource management, and environmental conservation, thereby strengthening experiential learning.

The institutional commitment to green infrastructure is reflected in actions aimed at the creation, conservation, and maintenance of these spaces, as well as their integration with built infrastructure. The UANL promotes tree-planting programs, sustainable tree management, and the continuous improvement of its green spaces, with the goal of maximizing the environmental and social benefits these spaces generate.

Green infrastructure represents a fundamental pillar of the UANL's sustainability strategy, as it contributes to the environmental resilience of its campuses and fosters a culture of respect for nature.





MEDEROS

Vegetation type: **submontane scrub**

Area (ha): **194**

Area with natural vegetation (ha): **161**

Factor (C ha⁻¹): **41**

Stored carbon (tons): **6,653**

CO₂ equivalent (tons): **24,418**



ITURBIDE

Vegetation type: **pine-oak**

Area (ha): **989**

Area with natural vegetation (ha): **989**

Factor (C ha⁻¹): **35**

Stored carbon (tons): **34,121**

CO₂ equivalent (tons): **125,222**





LINARES

Vegetation type: **thorny scrub**

Area (ha): **773**

Area with natural vegetation (ha): **680**

Factor (C ha⁻¹): **35**

Stored carbon (tons): **23,460**

CO₂ equivalent (tons): **86,098**



MARÍN

Vegetation type: **thorny scrub**

Area (ha): **1,052**

Area with natural vegetation: **1,051**

Factor (C ha⁻¹): **52**

Stored carbon (tons): **54,442**

CO₂ equivalent (tons): **199,801**





BRAVO

Vegetation type: **thorny scrub**

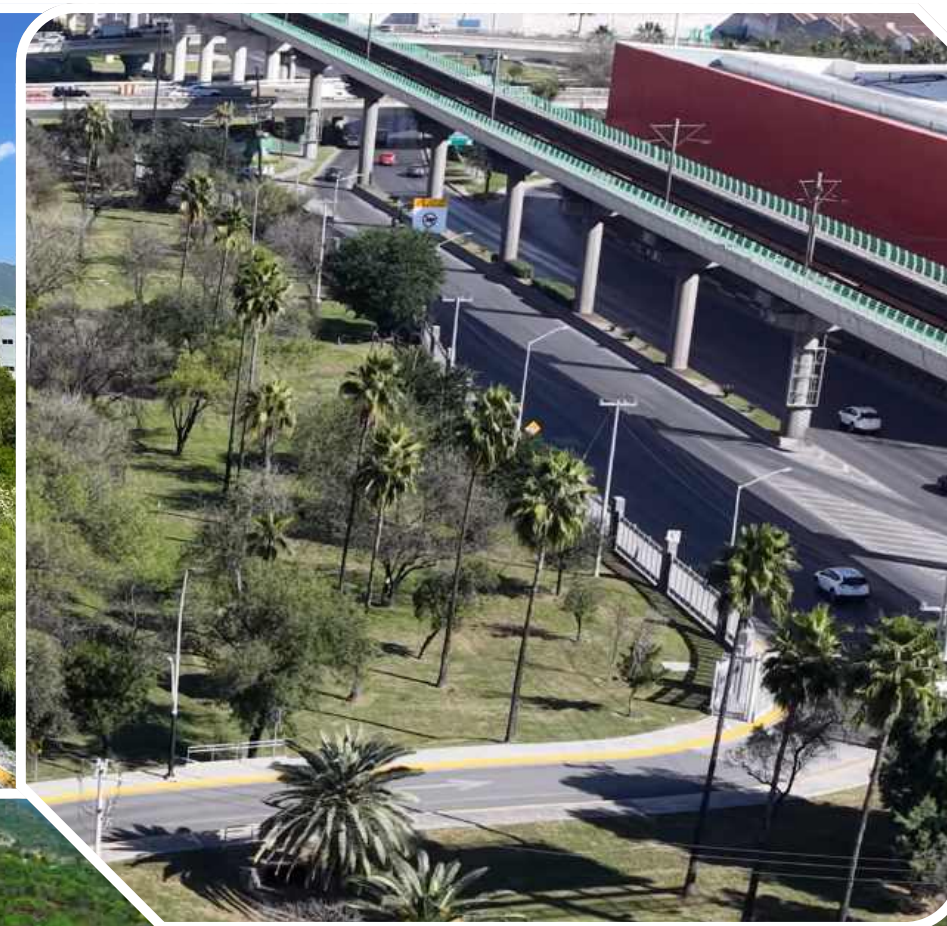
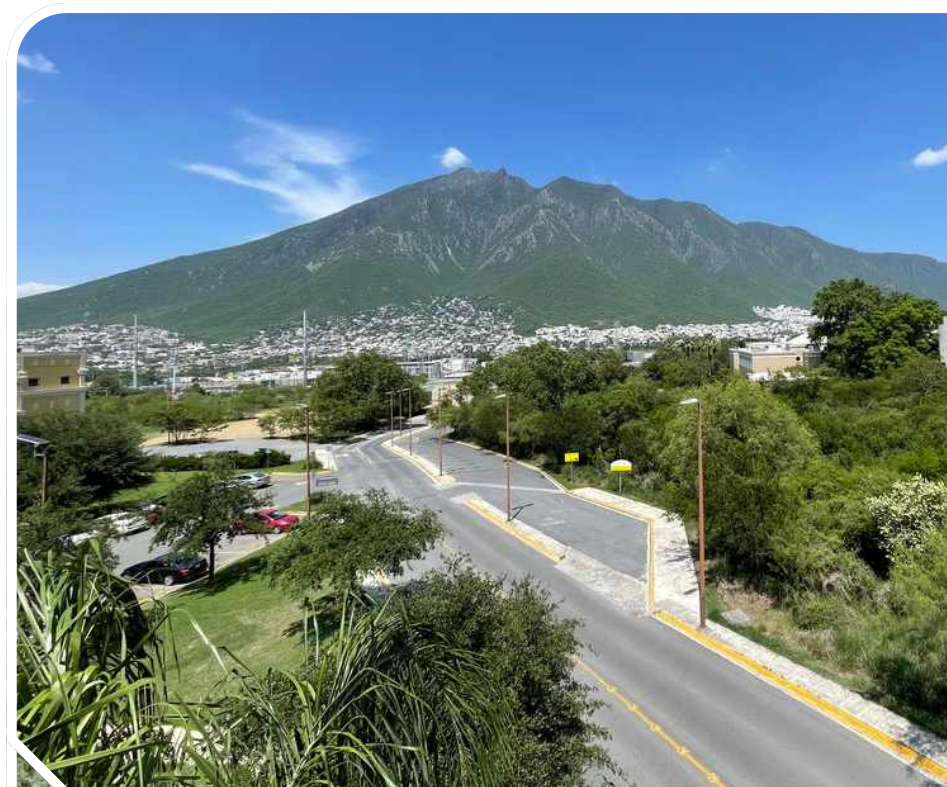
Area (ha): **630**

Area with natural vegetation (ha): **600**

Factor (C ha⁻¹): **52**

Stored carbon (tons): **31,080**

CO₂ equivalent (tons): **114,064**





SUSTAINABLE BUILDINGS

The Universidad Autónoma de Nuevo León (UANL) has established a strategy focused on the design, construction, and operation of sustainable and smart buildings as part of its institutional commitment to sustainable development.

This strategy aims to reduce the environmental impact of the university's infrastructure, improve the well-being of the academic community, and optimize the use of available natural and financial resources.

UANL's sustainable buildings incorporate advanced technologies and automated management systems that enable more efficient use of energy, water, and other key resources for their operation. Through the implementation of technological solutions, such as high-efficiency lighting systems, low-energy air conditioning equipment, and automated control devices, energy consumption and associated operating costs have been significantly reduced. Likewise, these actions directly contribute to reducing the institution's carbon footprint and to meeting the Sustainable Development Goals (SDGs) promoted by the United Nations.





The sustainability approach adopted by the UANL is not limited to energy efficiency but integrates broader criteria that consider the entire life cycle of buildings. In this regard, the use of recycled or low-environmental-impact construction materials is promoted, as well as the design of spaces that favor thermal efficiency and reduce the need for artificial climate control systems. Similarly, nature-based solutions are incorporated, such as green roofs and extensive garden areas, which help improve air quality, regulate temperature, and create communal spaces that positively impact the physical and emotional health of users.

Another fundamental element in the design of sustainable buildings is the prioritization of natural lighting and adequate ventilation. These features not only reduce energy consumption but also enhance occupant comfort and create environments conducive to learning, research, and personal development. The integration of these elements reflects a user-centered approach, in which the quality of spaces is considered a key factor in academic and professional performance.

In addition to their operational function, UANL's sustainable buildings serve an educational and formative purpose. Through these spaces, the University promotes a culture of sustainability within its community through training programs, awareness-raising activities, and the incorporation of responsible practices into daily university life. This vision aims to educate students and professionals with environmental awareness, capable of implementing innovative and sustainable solutions in their respective fields.

Together, sustainable buildings represent a strategic component of the institutional model, integrating operational efficiency, environmental responsibility, and social well-being. The results achieved reflect tangible benefits in reducing resource consumption, lowering pollutant emissions, and improving the quality of university spaces. In this way, the UANL reaffirms its leadership as a national and international benchmark in the implementation of sustainable infrastructure, actively contributing to the construction of a more resilient future.





Sustainable Building	Municipality	Total area	Objective
Center for Digital Education and Entrepreneurship	Monterrey	5,352 m ²	Support the expansion and strengthening of educational programs across various formats at all educational levels through transformative teaching practices, the use of learning technologies, and the knowledge of teachers and students.
Center for Innovation and Design (CID, for its acronym in Spanish)	San Nicolás de los Garza	2,687 m ²	Position design as a tool for change to address the challenges of today's society, promoting the development of innovative projects through research, project development, professional services, outreach, social development, and FabLab.
Center for Innovation, Research, and Development in Engineering and Technology (CIIDIT, for its acronym in Spanish)	Apodaca	7,380 m ²	A multidisciplinary and integrative center of the Universidad Autónoma de Nuevo León under the administration of the School of Mechanical and Electrical Engineering (FIME), consisting mainly of laboratories with state-of-the-art equipment designed to conduct research in fields of knowledge related to engineering
Center for Internationalization	Monterrey	7,773 m ²	To promote the institution's internationalization policy in the areas of teaching, research, and outreach, with the aim of identifying and, where appropriate, adopting and/or adapting best practices in these fields, as they have been implemented worldwide.
Center for Research and Innovation in Aeronautical Engineering (CIIIA)	Apodaca	3,600 m ²	To serve as the technological arm of the aeronautical and aerospace industry in northern Mexico, promoting high-value projects in the production chain, and developing advanced engineering, research, and technological innovation across the sector's various branches through activities focused on the development of new technologies, products, materials, and processes.
Center for Research in Biotechnology and Nanotoxicology (CIBYN, for its acronym in Spanish)	Apodaca	6,119 m ²	To advance and disseminate science and technology through interdisciplinary collaboration in three areas of global significance: health, energy, and the environment, as well as to serve as a catalyst for innovation, research, economic development, and social prosperity in Mexico and the world.
Center for Sustainable Development Research (CIDS, for its acronym in Spanish)	San Nicolás de los Garza	5,913 m ²	A university unit dedicated to research on the environment and sustainability that serves as a regional reference center for environmental information and communication and sustainable development, aimed at finding better alternatives to solve environmental problems in northeastern Mexico.
Center for Research and Development in Health Sciences (CIDICS, for its acronym in Spanish)	Monterrey	15,592 m ²	To create a space for scientific and technological research aimed at generating knowledge applied to solving priority health issues at the local, national, and international levels.





Sustainable Building	Municipality	Total area	Objective
Center for Research, Innovation, and Development in the Arts (CEIIDA, for its acronym in Spanish)	Monterrey	8,335 m ²	To promote research, innovation, and the development of knowledge in the arts, as well as to foster the documentation and creation of archives that enrich the regional and national artistic heritage.
Medical Services Clinic, Ciudad Universitaria Campus	San Nicolás de los Garza	1,445 m ²	To provide quality medical care to university employees, both active and retired, and their dependents.
School of Dentistry	Monterrey	24,624 m ²	A higher education institution that provides comprehensive training for dental professionals; it features innovative facilities and a physical infrastructure spread across six buildings, including classrooms and clinics for both undergraduate and graduate programs, which in turn are equipped with state-of-the-art dental units.
Torre HU	Monterrey	79,030 m ²	Provides specialized care in nuclear medicine, oncology, and advanced hematology; it also has an emergency department for highly complex medical care.
School of Nursing	Monterrey	4,588 m ²	Higher education institution offering professional nursing programs, as well as master's and doctoral degrees in nursing sciences. It generates knowledge aligned with local, regional, national, and international health demands, grounded in ethical and humanistic values, and applying university and disciplinary principles and values.
School of Public Accounting and Management	San Nicolás de los Garza	2,078 m ²	Higher education institution that trains ethical, competitive, and innovative professionals with global competencies, a humanistic approach, and a sense of social responsibility in business, committed to sustainable, scientific, and technological development. It offers spaces for academic training as well as cultural spaces that contribute to the development of its students.
School of Mechanical and Electrical Engineering	San Nicolás de los Garza	3,221 m ²	A higher education institution whose mission is to provide competency-based education for engineers and researchers capable of performing efficiently in the knowledge society. It features physical spaces such as study cubicles, smart classrooms equipped with state-of-the-art technology, videoconferencing rooms, computer labs, libraries, and auditoriums.



Sustainable Building	Municipality	Total area	Objective
Center for Research in Chemistry and Green Engineering	Monterrey	2,432 m ²	Focused on developing projects aimed at reducing environmental impact and transforming production and technological processes. It features laboratories specializing in catalysis, bioprocesses, electrochemistry, and sustainable materials.
Regional Center for Kidney Diseases	Monterrey	42,125 m ²	A leading center in northeastern Mexico for the care, research, and comprehensive treatment of patients with acute and chronic kidney diseases.
Institute of Civil Engineering	San Nicolás de los Garza	11,242 m ²	A practical training facility for civil engineering students, it consists of thirteen departments and nine laboratories.
School of Economics	Monterrey	10,450 m ²	Higher education institution responsible for the comprehensive training of economists at the undergraduate and graduate levels.
School of Visual Arts	Monterrey	8,693 m ²	Higher education institution responsible for the training and development of professionals in the production, teaching, and research of art and visual culture, who possess a broad perspective on life and are fully aware of regional, national, and global issues.
School of Performing Arts	Monterrey	10,639 m ²	An arts institution of higher education that brings together artists and professionals in theater and contemporary dance dedicated to teaching, research, experimentation, and the promotion of the performing arts at the local, national, and international levels.



Sustainable Building	Municipality	Total area	Objective
School of Music	Monterrey	9,571 m ²	Higher education institution dedicated to the comprehensive training of music technicians and professionals, creators, and innovators
School of Political Science and International Relations	Monterrey	16,668 m ²	Higher education institution whose mission is to train professionals, teachers, and researchers in the disciplines of Political Science, Public Administration, International Relations, and related fields.
Academic Unit A in Santiago	Santiago	2,165 m ²	As part of the decentralization plan being implemented by the Autonomous University of Nuevo León to make education more accessible to all residents of the state, the campus offers programs at the high school, undergraduate, and graduate levels.
Academic Unit B in Santiago	Santiago	5,625 m ²	An educational institution that trains innovative, competent technicians capable of performing efficiently in society, fostering awareness that contributes to sustainable, economic, scientific, technological, and cultural development, as well as providing students with a high-quality education.
García Academic Unit	García	2,389 m ²	As part of the decentralization plan being implemented by the Autonomous University of Nuevo León to make education more accessible to all residents of the state, the campus offers programs at the high school, undergraduate, and graduate levels.
Juárez Academic Unit	Juárez	13,083 m ²	As part of the decentralization plan being implemented by the Autonomous University of Nuevo León to make education more accessible to all residents of the state, the campus offers programs at the high school, undergraduate, and graduate levels.
Total		312,819 m ²	



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Water Efficiency Program

The northeastern region of Mexico repeatedly faces periods of water stress resulting from climate variability, high temperatures, irregular rainfall, and increased demand for this vital resource due to urban and industrial growth. These conditions have highlighted the need to transition toward a new water culture based on conservation, efficiency, reuse, and social responsibility



In this context, the Universidad Autónoma de Nuevo León (UANL) has been operating the Water Efficiency Program continuously for over 16 years. The program has established itself as an institutional strategy aimed at reducing consumption, preventing waste, and strengthening the sustainable management of this resource across all its campuses and academic units. This ongoing effort reflects the university's commitment to sustainable development, resilience in the face of water scarcity, and the well-being of the community.



The program operates under a comprehensive approach that combines technological modernization, continuous monitoring, preventive maintenance, and environmental education. Among the main actions implemented are the installation of water-saving devices in toilets and sinks; the automation of hydraulic systems; the sectorization of internal networks; and the timely detection of leaks through periodic inspections and specialized technical monitoring.





In 2025, 435,000 liters of rainwater were collected

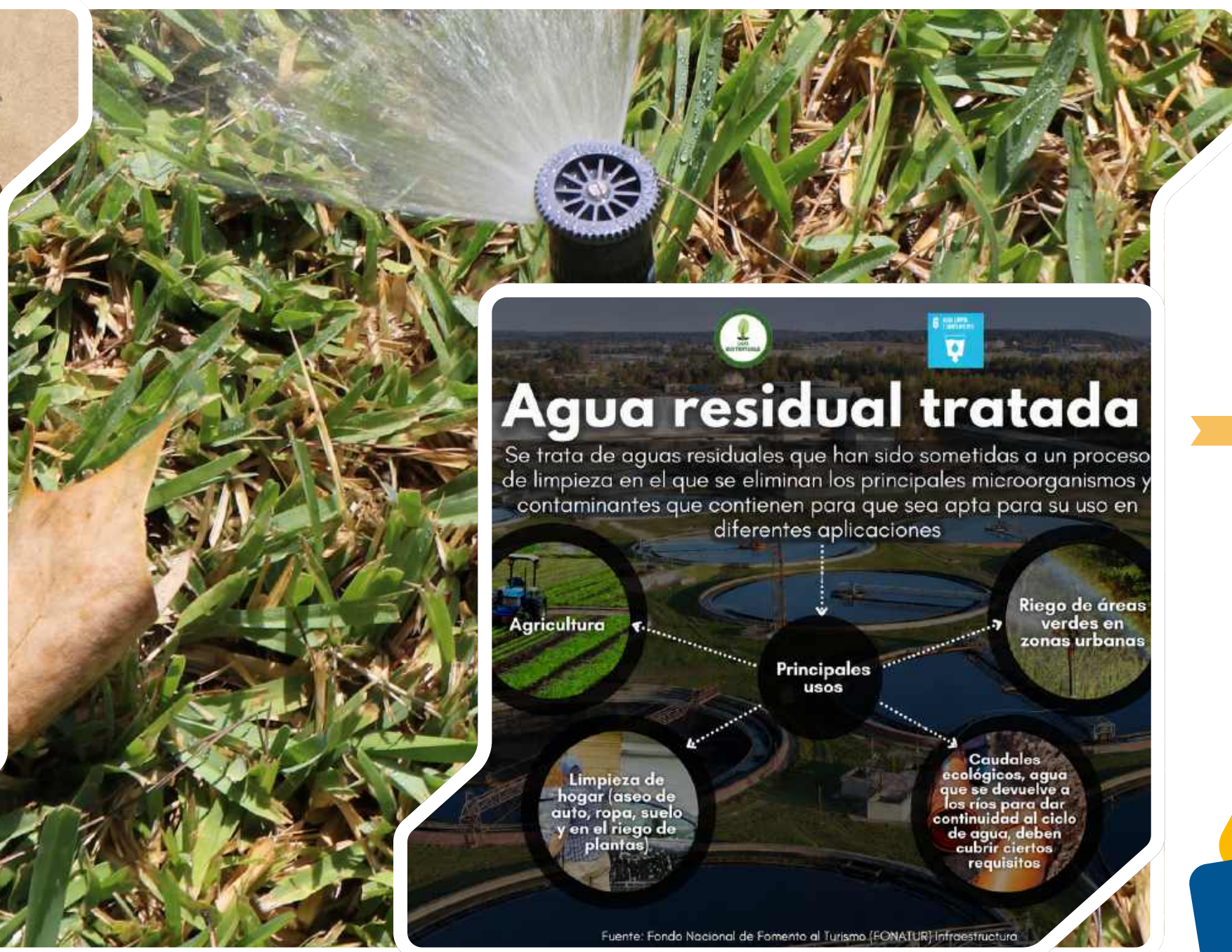
Likewise, the UANL has strengthened the use of alternative water sources to reduce the demand for potable water. Among these actions, the recovery of condensed water from air conditioning units stands out, which is reused primarily for irrigating green spaces and maintenance tasks. Similarly, rainwater harvesting systems have been developed using roofs and impervious surfaces connected to filtration and storage infrastructure for non-potable uses.

In 2025, through rainwater harvesting systems located in 10 academic facilities, a total of 435,000 liters of this vital liquid were collected, which were used for non-potable purposes, such as irrigating green spaces, cleaning areas, and maintaining infrastructure.



Another strategic component is the reuse of treated water for activities compatible with health and environmental criteria, which helps reduce pressure on conventional water sources. These measures allow for the optimization of available resources and strengthen institutional water security.

Through the Control Panel operated by the Sustainability Department, via the Directorate of Infrastructure for Sustainability, monthly consumption monitoring is conducted, which facilitates decision-making based on up-to-date and reliable information, the identification of anomalies, and the continuous improvement of water performance indicators.



At the same time, the UANL promotes ongoing awareness campaigns targeting students, faculty, and administrative staff, encouraging responsible habits such as the rational use of water, reporting leaks, and valuing the resource as a strategic asset.

The cumulative benefits of the program are reflected in reduced institutional consumption, financial savings, greater operational efficiency, a decreased environmental impact, and the strengthening of a university culture committed to the efficient use and conservation of water.

Through these actions, the UANL contributes to the achievement of Sustainable Development Goal 6: Clean Water and Sanitation, establishing itself as a national and international leader in responsible water management at the local and national levels.





Water Distribution Network Maintenance Program

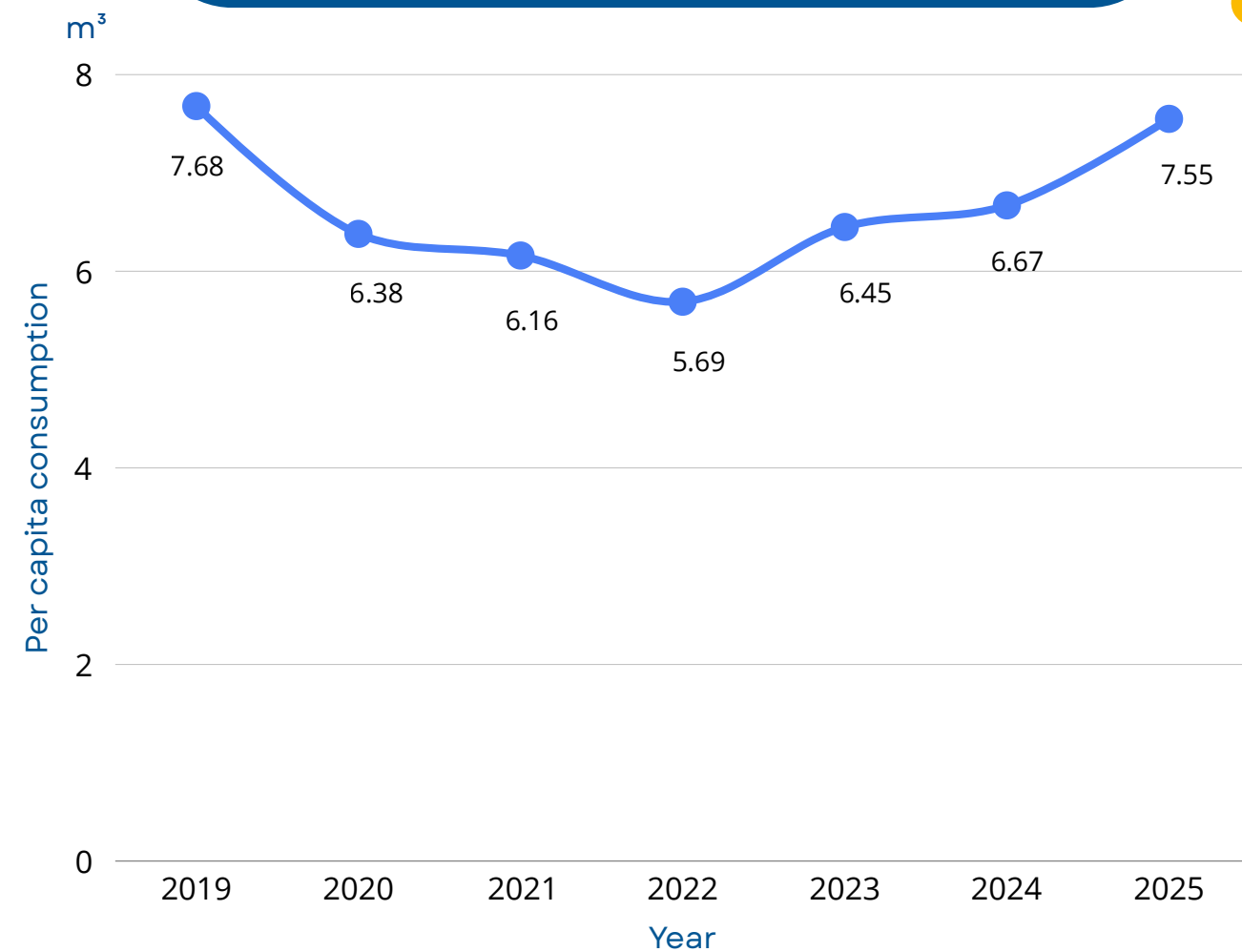
The Water Network Maintenance Program at the Universidad Autónoma de Nuevo León (UANL) is an institutional strategy aimed at ensuring the efficiency, continuity, and quality of the drinking water and treated water supply across the university's various campuses. Through this program, ongoing activities are carried out, including inspection, preventive and corrective maintenance, leak repair, pipe modernization, and optimization of hydraulic systems, with the aim of reducing losses and ensuring responsible use of water resources.

Likewise, the program promotes the use of treated water for activities that do not require drinking water, helping to reduce pressure on water sources and strengthening institutional efforts toward efficient water use. These measures improve the performance of the university's water infrastructure, reduce waste, and generate environmental, economic, and operational benefits for the university community.





In 2025, per capita water consumption was recorded at **7.55 m³**



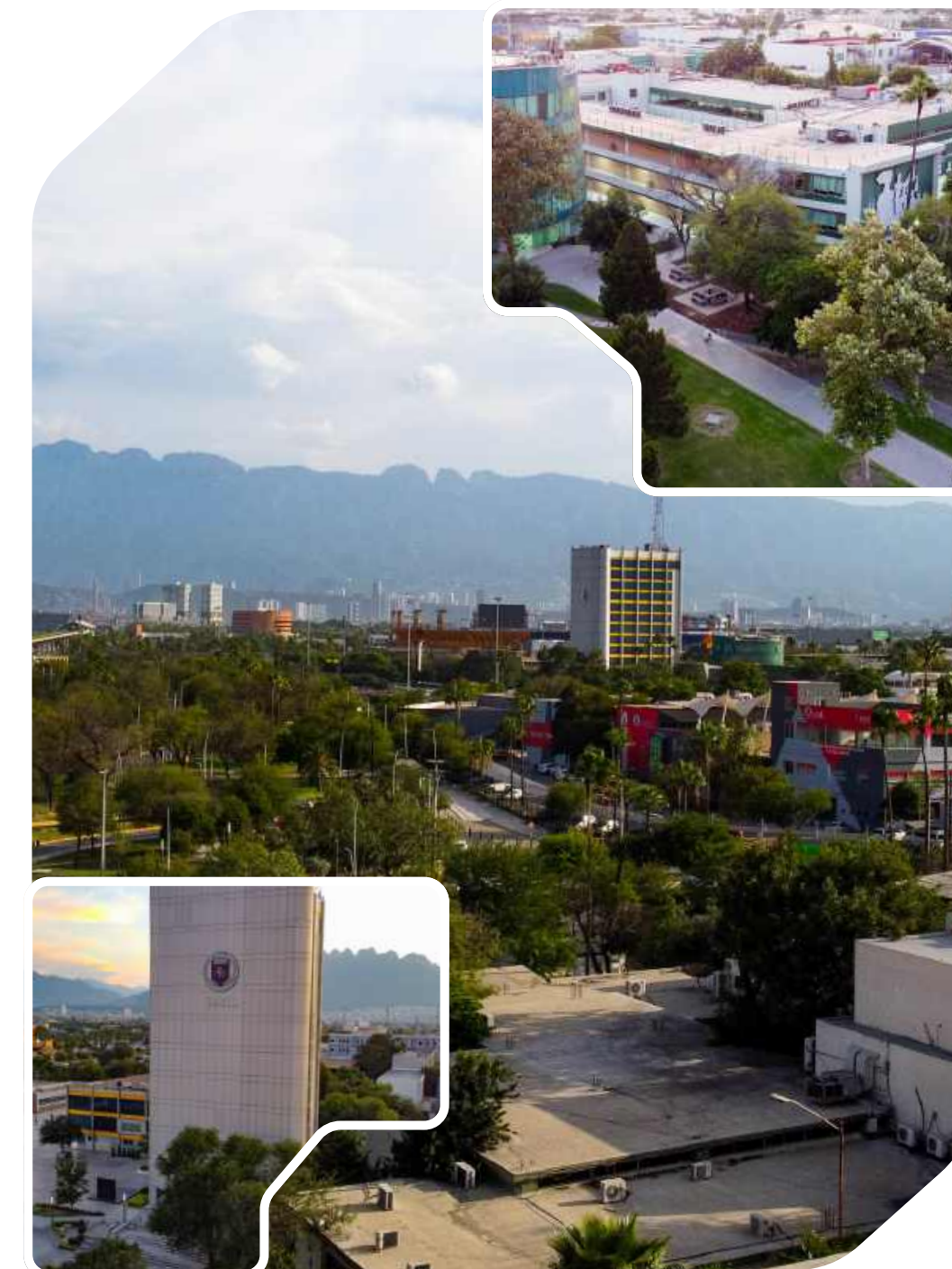
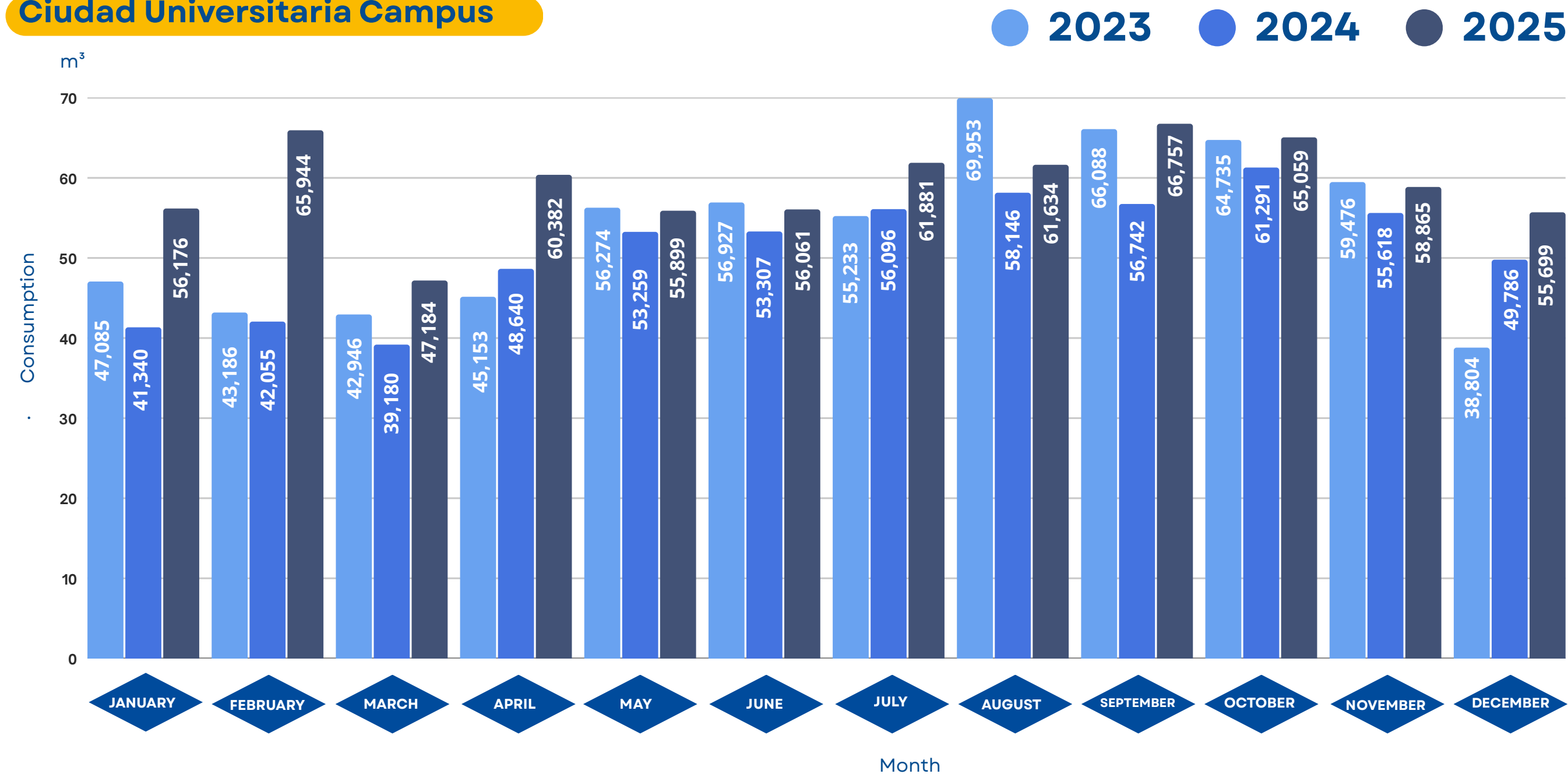
The Universidad Autónoma de Nuevo León recorded a total water consumption of **1,674,374 m³** in 2025





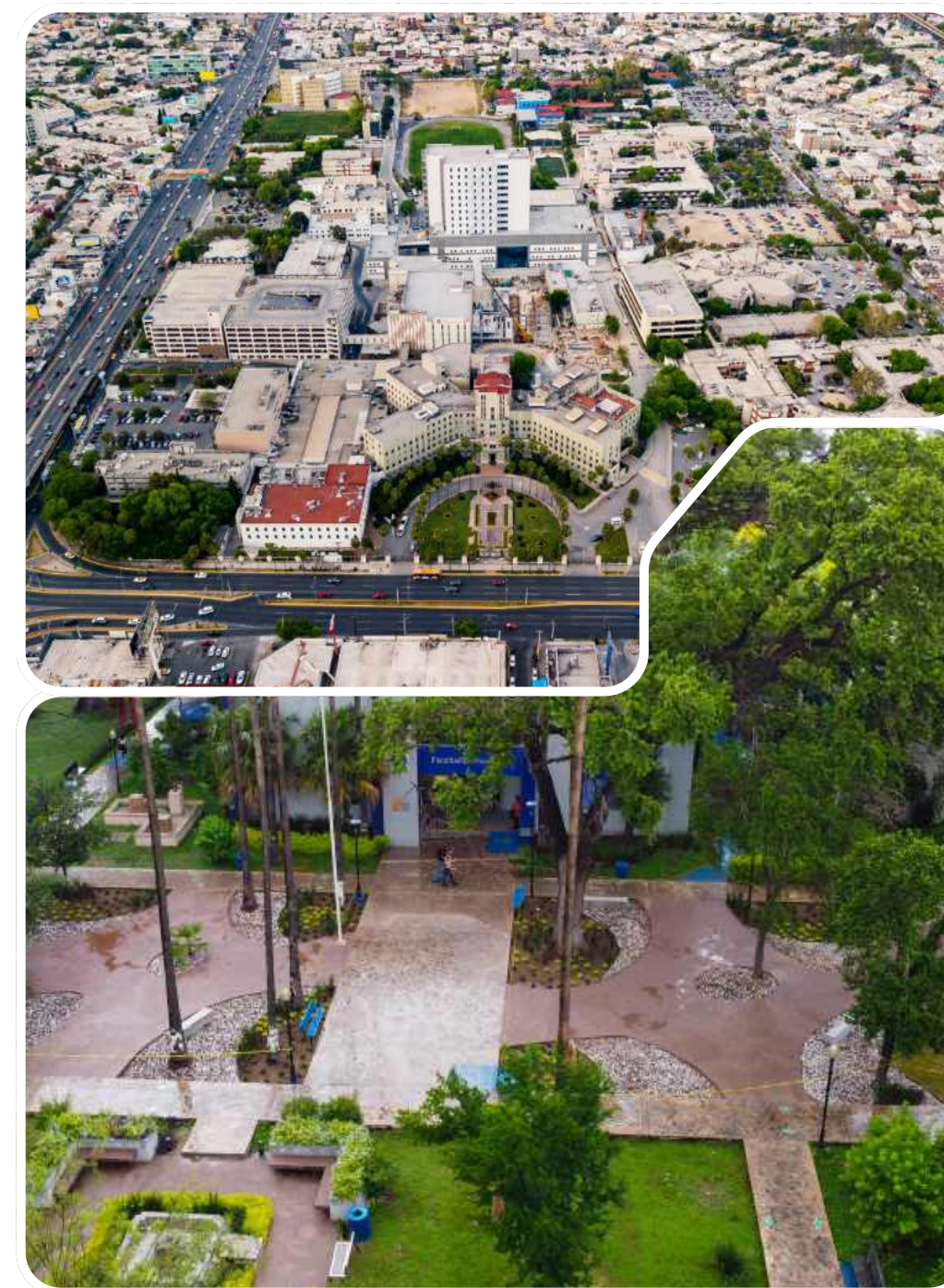
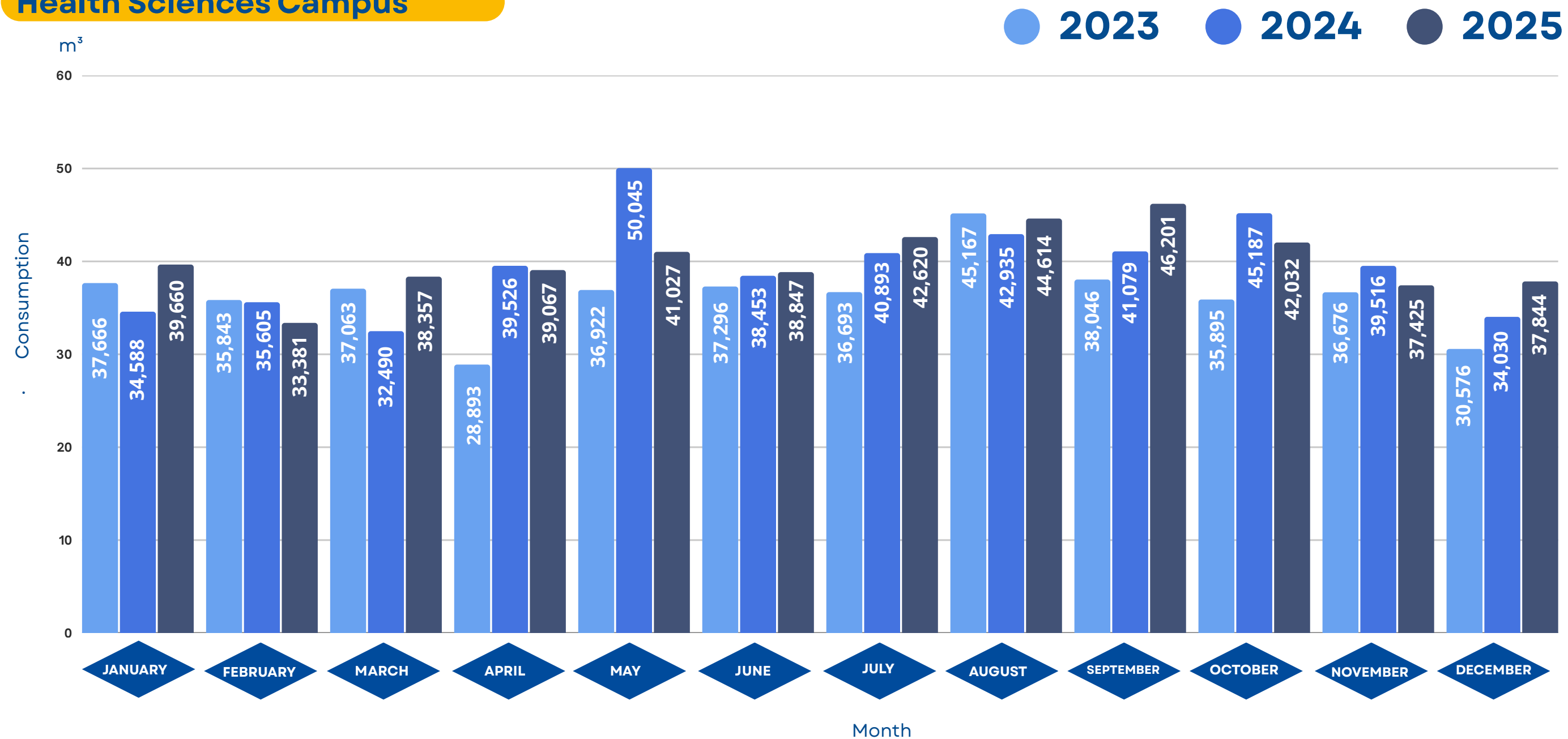
Monthly water consumption m³

Ciudad Universitaria Campus



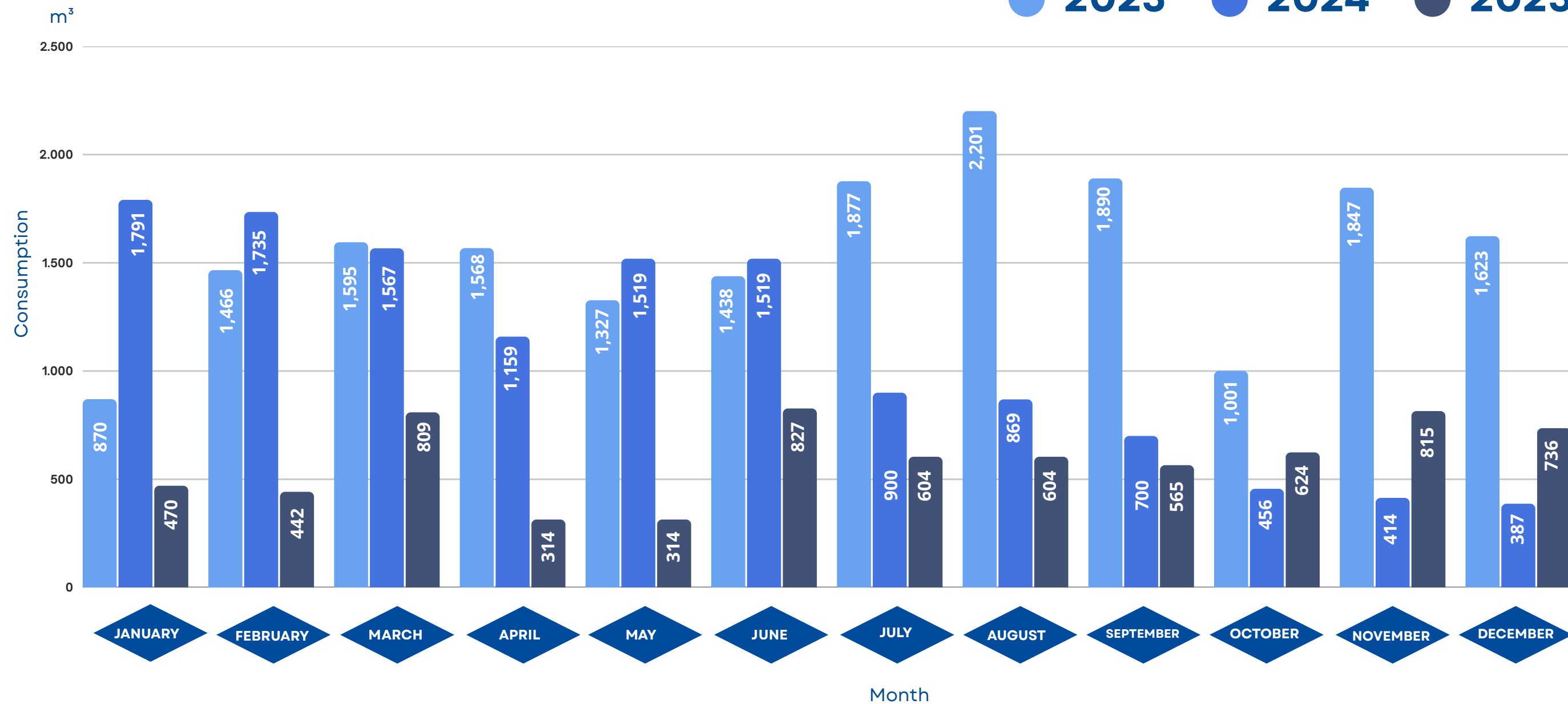


Monthly water consumption m³ Health Sciences Campus





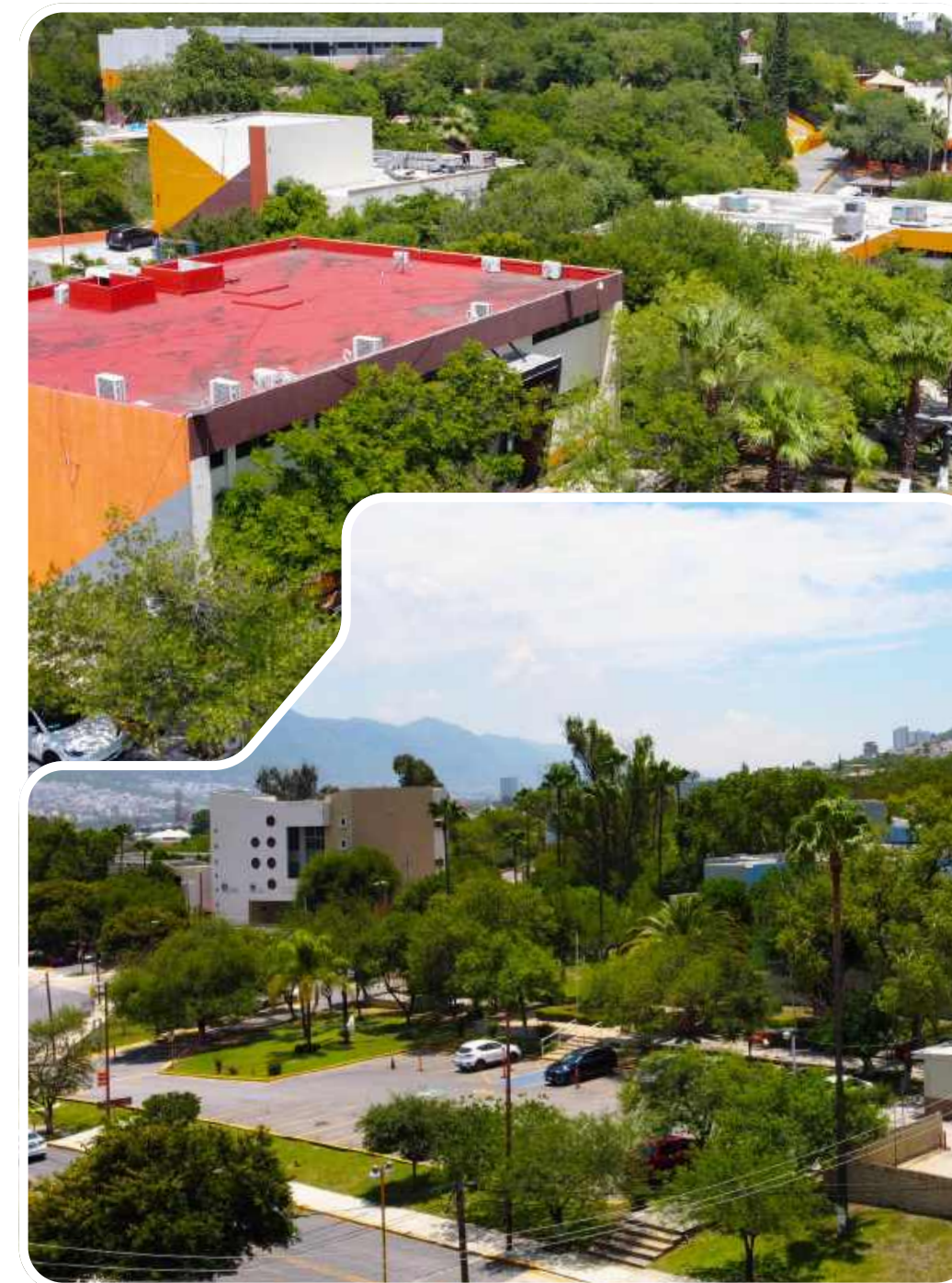
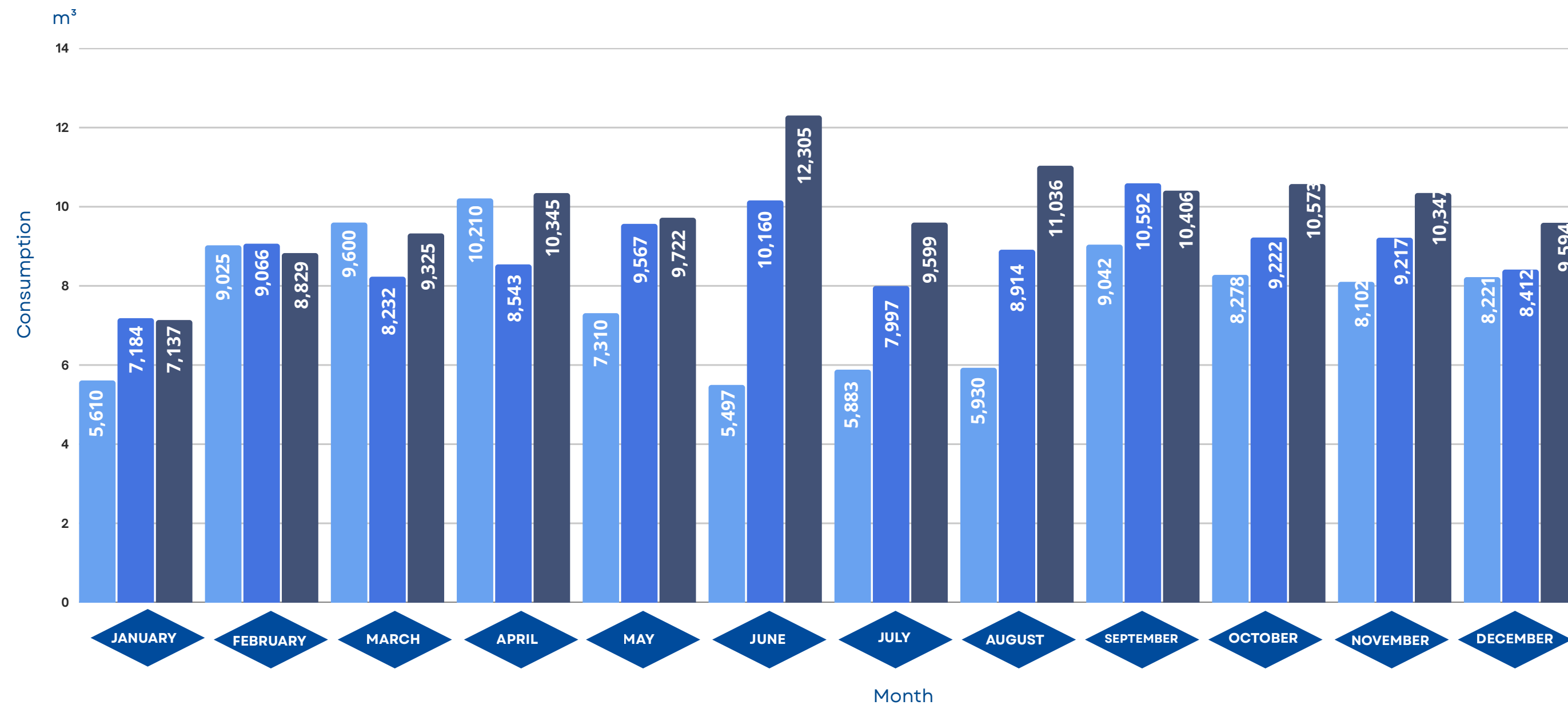
Monthly water consumption m³ Agricultural Sciences Campus





Monthly water consumption m³ Mederos Campus

● 2023 ● 2024 ● 2025



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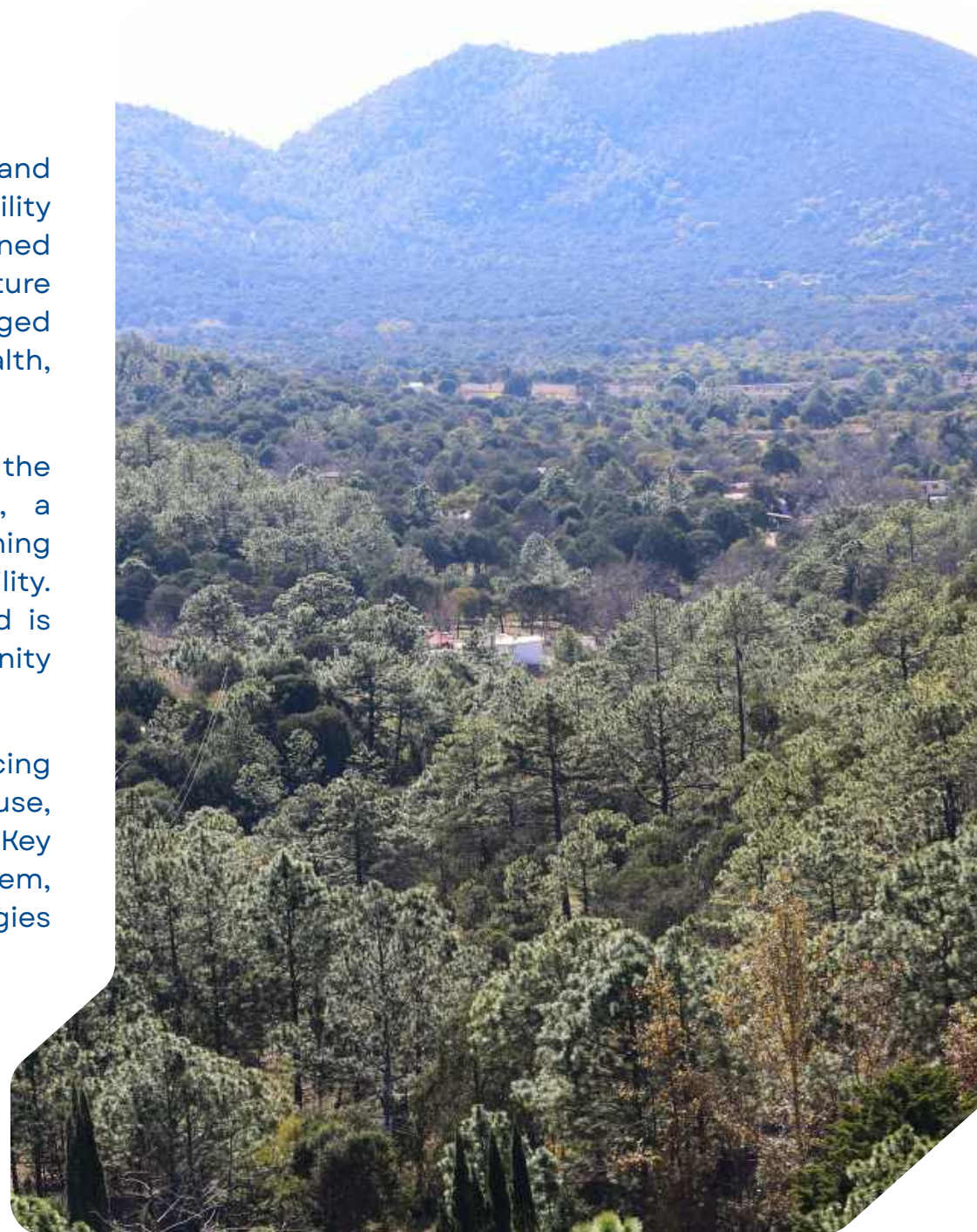


CLIMATE ACTION PROGRAM

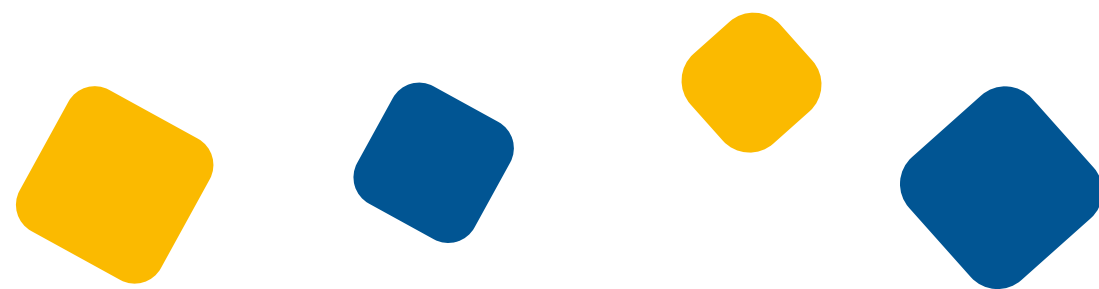
The global climate crisis continues to intensify as a result of the historical and indiscriminate use of fossil fuels, high levels of industrialization, and current mobility models based primarily on petroleum products. This scenario has led to a sustained increase in greenhouse gas concentrations, raising the planet's average temperature and causing increasingly severe impacts, including extreme heat waves, prolonged droughts, torrential rains, loss of biodiversity, and adverse effects on human health, food security, and economic stability.

In response to this situation, the Universidad Autónoma de Nuevo León maintains the UANL Climate Action Program (PAC-UANL, for its acronym in Spanish), a comprehensive institutional strategy aimed at mitigating emissions, strengthening climate adaptation, and fostering a university culture committed to sustainability. This program is part of the institution's responsible management model and is integrated with its core functions of teaching, research, innovation, and community engagement.

In terms of mitigation, the PAC-UANL promotes actions focused on reducing greenhouse gas emissions through energy efficiency programs, efficient water use, sustainable mobility, responsible consumption, and circular economy schemes. Key initiatives include strengthening the university's public transportation system, promoting non-motorized and electric modes of transport, as well as strategies aimed at reducing waste and optimizing resources in institutional processes.



96.8 % of the UANL's land area is covered by vegetation in good condition





A strategic component of the program is the conservation of the university’s natural capital. Of the 3,812 hectares occupied by the UANL, 96.8% are covered by vegetation in good condition, which allows for the absorption of approximately 500,000 tons of CO₂ equivalent per year, functioning as a significant carbon sink. Thanks to this capture capacity and the measures implemented to reduce emissions, the University maintains a positive carbon balance.

In the area of adaptation, the UANL has developed actions to address its high climate vulnerability, stemming from its geographic location in a region exposed to heat waves and extreme weather events such as severe droughts and intense rainfall. These threats pose risks to infrastructure, academic continuity, and the health and safety of the university community. Therefore, the PAC-UANL incorporates resilient infrastructure, risk management systems, ecosystem conservation, and nature-based solutions.

The program has strengthened institutional water security through technologies for harnessing alternative water sources, including rainwater harvesting and the recovery of condensate from HVAC systems, helping to reduce pressure on the conventional water supply.



The UANL has a carbon sink with an estimated capacity to store just over **500,000 metric tons** of CO₂ equivalent

CO₂ absorption capacity of areas covered by natural vegetation located at the UANL

Campus	Vegetation type	Surface area (ha)	Vegetation (ha)	Factor (C ha-1)	Carbon stored (ton)	CO2 Equivalent (ton)
Mederos	Piedmont scrub	194	161	41	6,653	24,418
Linares	Thornscrub	773	680	35	23,460	86,089
Iturbide	Oak-Pine	989	989	35	34,121	125,222
Marin	Thornscrub	1,052	1,051	52	54,442	199,801
Bravo	Thornscrub	630	3,481	52	31,080	114,064
TOTALS		3,638	6,362	215	149,756	549,603

Source: Project Development Office of the Sustainability Department, UANL.



Likewise, biodiversity conservation and tree-planting campaigns with native species increase the ecological resilience of the campuses, improve the urban microclimate, capture carbon, and create healthy recreational spaces for the community.

PAC-UANL also promotes climate education and social engagement through courses, workshops, seminars, and collaborative projects with governments, businesses, and civil society organizations, extending the impact of climate action beyond the university setting.

Aligned with the 2030 Agenda and Sustainable Development Goals 4, 6, 7, 11, 12, 13, 15, and 17, the Climate Action Program establishes the Universidad Autónoma de Nuevo León as a national and international leader in building resilient, low-carbon institutions committed to the future of the planet.



Carbon balance

	Kg CO ₂ (Equivalent)	Balance
Electricity consumed	81,714,000	81,714,000
University buses (TigreBus)	631,000	82,345,000
Motor vehicles	761,000	83,106,000
Motorcycles	25,000	83,131,000
CO ₂ storage in vegetation	-549,603,000	-466,472,000
Waste recycling	-858,000	-467,330,000
Digital education	-18,249,480	-485,579,480

Source: Project Development Office of the Sustainability Department.

In 2025, the UANL achieved a carbon positive balance of

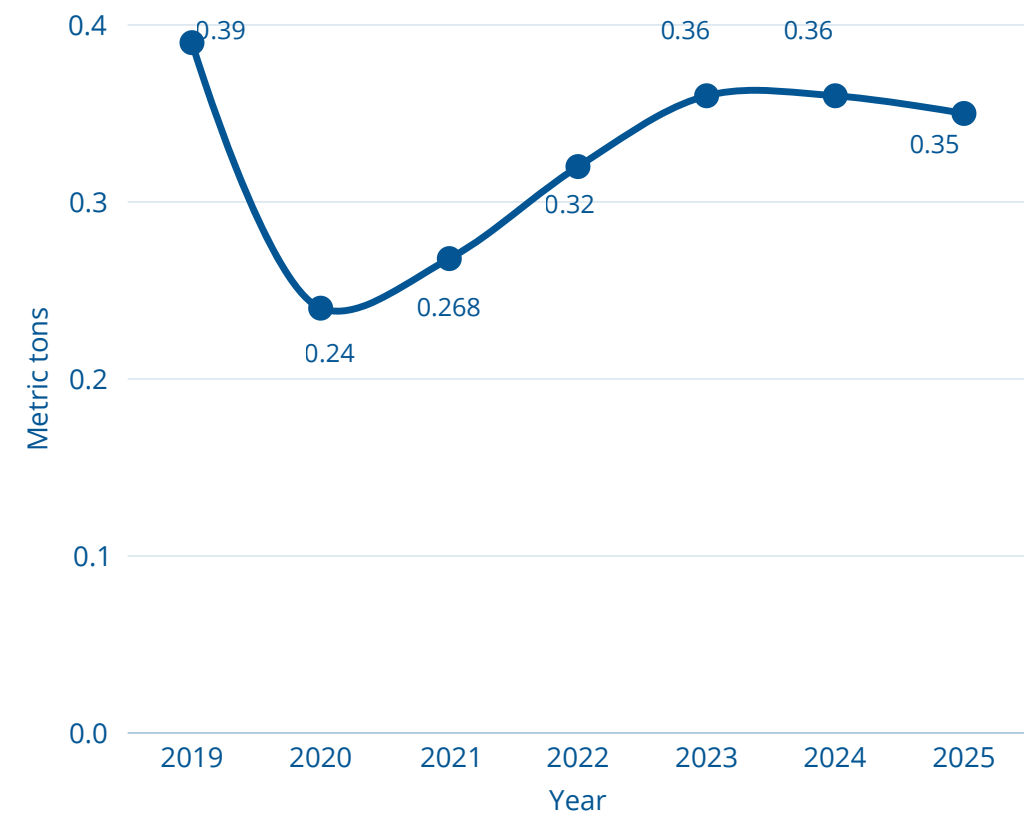
485 mil

tons of CO₂ equivalent





UANL's per capita carbon footprint was

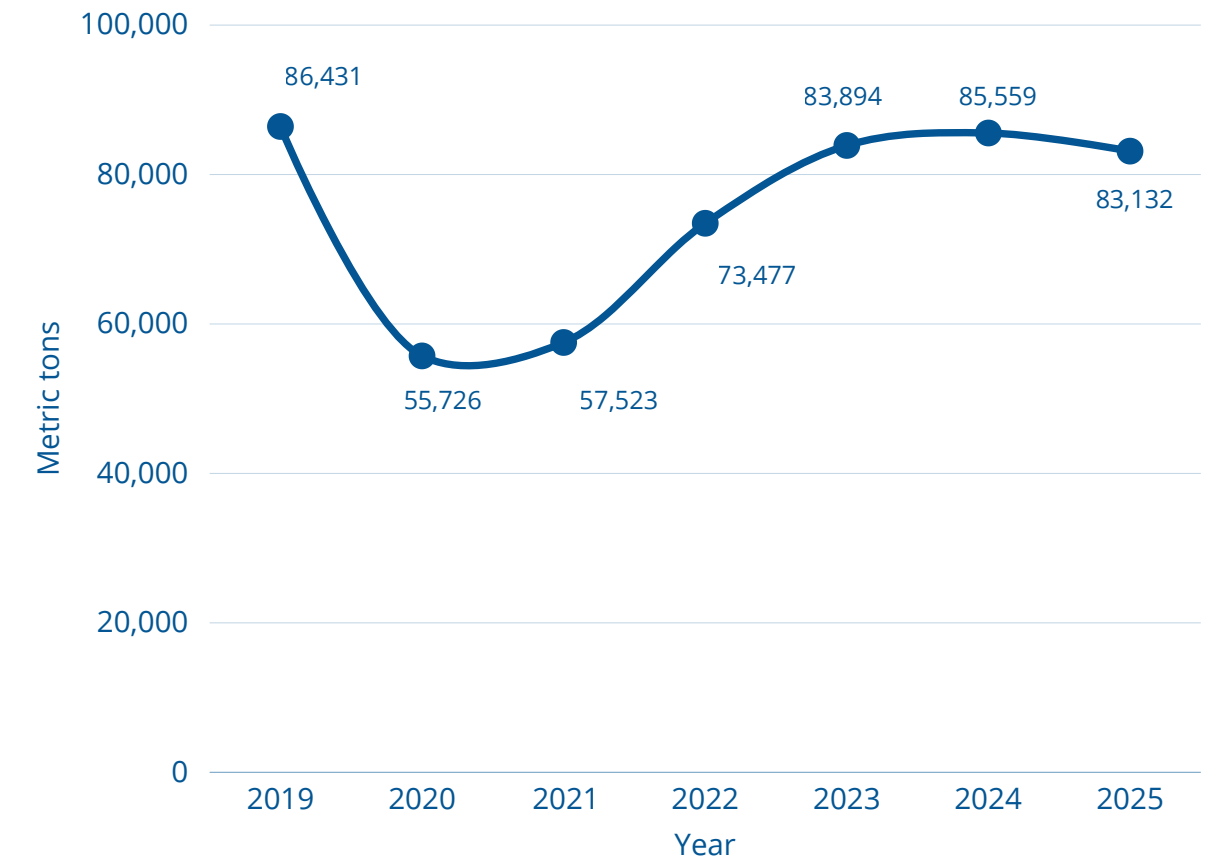


In 2025, the UANL's per capita carbon footprint was

0.35 metric tons



The UANL's carbon footprint was



In 2025, the UANL's carbon footprint was

83,132 metric tons*

Source: Calculated using the methodology proposed by Carbon Footprint TMB (www.carbonfootprint.com)





Campaigns for the Recovery of Natural Environments in Urban Areas

The rampant and, in many cases, unplanned growth of cities increasing pressure on the natural environments that still exist within and on the outskirts of urban areas. These spaces include fragmented ecosystems, urban parks, greenways, bodies of water, and wetlands that perform essential ecological functions and provide significant social benefits. Among their main contributions are improved air quality, climate regulation, infiltration and recharge of aquifers, reduced risk of floods and droughts, conservation of biodiversity, and the provision of areas conducive to the physical and mental health of the population.

The expansion of cities, often reduce ecosystems to isolated lots of land smothered by surrounding urban infrastructure. Such fragmentation compromises landscape connectivity, hinders mobility of species, disrupts genetic flow between populations, and makes ecosystems vulnerable to diseases, invasive species, and extreme weather phenomena.

In response to this crisis, the Universidad Autónoma de Nuevo León (UANL), through the Project Development Department of the Secretariat of Sustainability, has been involved in the Campaigns for the Recovery of Natural Environments in Urban Areas since 2016. This initiative aims to rehabilitate public spaces with ecological importance, improve the environmental quality in urban surroundings, and provide safe spaces for social gatherings, environmental education, and recreation.



Between 2016 and 2025, 36 campaigns were carried in natural environments located in 9 municipalities within the Monterrey Metropolitan Area, with the participation of 8,250 volunteers from the college community, government institutions, the private companies, civil society organizations, and the general public. These activities have established themselves as a local and regional benchmark in the field of urban ecological restoration.

More than
8,000
participants





The main activities carried out include:

- Removal of improperly disposed urban solid waste.
- Control and elimination of invasive alien species that affect native biodiversity.
- Reforestation of native plant species adapted to local ecological conditions.
- Educational workshops on native flora, urban restoration techniques, pollinator gardens, and integrated waste management.

The campaigns serve as interdisciplinary spaces for applied learning, where participants from various academic, technical, and social backgrounds integrate their knowledge and experiences to address common environmental problems. This collaborative approach strengthens social co-responsibility, increases environmental awareness, and promotes a sustainable vision of the population's relationship with its environment.

A key aspect of this strategy is its replicability by educational institutions, government organizations, and civil associations, which has enabled its expansion as an environmental upright practice in the state of Nuevo León. Additionally, the collective participation has contributed to the development of a culture of care, restoration, and social ownership of the territory.

Having undertaken these endeavors, the UANL reasserts its commitment to urban sustainability and the university social responsibility. Through the combination of institutional capacities, scientific knowledge, and community collaborations, the University actively contributes in the formation of increasingly resilient, inclusive, and ecologically functional cities. This model shows the strategic role of higher education in transforming the urban environment through a sustainability-focused approach.



SUSTAINABLE AGRICULTURAL PRODUCTION

Sustainable agricultural development represents one of the main challenges and opportunities for higher education institutions committed to knowledge generation, technological innovation, and the conservation of natural resources.

In the face of the effects of climate change, ecosystem degradation, biodiversity loss, and growing food demand, it is essential to promote agricultural production models that meet the current needs of the population without compromising the productive and environmental capacity of future generations.

With this approach, the Universidad Autónoma de Nuevo León (UANL) has strengthened various initiatives aimed at promoting more efficient, resilient, and environmentally responsible agricultural systems through the development of research projects, technology transfer, and productive development in strategic venues such as the Agricultural Production Research Center (CIPA, for its acronym in Spanish) and the Vallecillo Regional Livestock Development Center. These units serve as platforms for innovation and collaboration, integrating teaching, applied research, and extension activities focused on the sustainable management of agricultural resources.



Among the key initiatives promoted by the UANL are productive diversification, the implementation of crop rotation schemes, livestock genetic improvement, efficient water management, and soil conservation and restoration strategies. Complementarily, the protection of biodiversity and ecosystem services associated with agricultural systems is promoted through practices that favor the conservation of vegetation cover, the reduction of erosion processes, and the responsible use of natural resources.

Likewise, the incorporation of appropriate technologies and sustainable practices helps strengthen the productivity and competitiveness of the agricultural sector, while contributing to reducing environmental impacts associated with conventional production. These actions enhance the resilience of agricultural and livestock systems against droughts, pests, diseases, and extreme weather events, while also promoting food security, regional development, and the building of technical skills among students, producers, and rural communities.

Through the implementation of all these initiatives, the UANL reaffirms its commitment to building models of sustainable rural development, promoting comprehensive solutions that integrate agricultural production with the conservation of water, soil, and biodiversity, thereby contributing to the social, economic, and environmental well-being of Nuevo León and Mexico.





◆ Agricultural Production Research Center (CIPA, for its acronym in Spanish)

This research center, located in the municipality of Linares in the southern part of the state, is one of the most important venues for promoting research, technological innovation, and the training of specialized human resources in the agricultural sector of northeastern Mexico. Since its creation, CIPA has played a fundamental role in strengthening rural and productive development in Nuevo León through the generation of scientific knowledge, technology transfer, and the implementation of sustainable production models adapted to the region's environmental and socioeconomic conditions.



Throughout its history, CIPA has contributed significantly to the development of the state's agricultural sector through projects focused on animal genetic improvement, production efficiency, the sustainable management of natural resources, and the diversification of agricultural activities. Similarly, it has established itself as a center for academic and practical training for students, researchers, technicians, and producers, strengthening professional and scientific capacities related to the sustainable management of agri-food systems.

Guided by a comprehensive vision of sustainability, CIPA promotes strategies aimed at increasing agricultural productivity with an environmentally responsible approach.





◆ Sustainable Strategy for Forage Production and Utilization in Livestock Systems

Forage production is carried out through a sustainable management scheme aimed at maximizing production efficiency, conserving natural resources, and strengthening the food self-sufficiency of the livestock system.

In areas where forage sorghum and Pretoria grass are grown, favorable rainfall conditions during the rainy season allow for higher biomass production, promoting both feed availability for livestock and soil recovery and conservation.

As part of the utilization strategy, a first cut of forage sorghum is harvested for silage production, allowing for the preservation of high-nutritional-quality forage for use during periods of scarcity or low pasture production. If favorable weather conditions persist, a second harvest is carried out, which is used to produce hay bales and rolls, thereby increasing strategic feed reserves and reducing dependence on external inputs.



The management of these crops not only contributes to the herd's forage supply but also to the establishment and strengthening of Pretoria grass, a perennial species that represents a sustainable alternative for the region's livestock production systems. As it is a long-lived grass, the need for frequent soil preparation is significantly reduced, thereby lowering operating costs, fuel consumption, soil compaction, and emissions associated with mechanized agricultural activities.

Likewise, management of the area will focus on soil conservation and improvement practices, through fertilization and aeration that promote greater water infiltration and capture, improving moisture retention and fostering the health of the productive ecosystem. These actions help reduce erosion, increase long-term productivity, and strengthen the system's resilience to variable weather conditions. With this sustainable forage production and management scheme, the goal is to move toward a more efficient, resilient, and environmentally responsible livestock model that optimizes the use of natural resources, improves productivity, and ensures the long-term sustainability of livestock activities.



Sustainable Viticulture

An experimental vineyard was established in 2011 with grapevine species of low water requirements, such as *Vitis vinifera L.* In 2024, the harvesting plots reached 4 hectares, with varieties such as Cabernet Sauvignon, Merlot, Shiraz, Tempranillo, and Sauvignon Blanc. These actions promote productive adaptation in semi-arid areas, boosting profitability and efficient water usage.



Since 2011, grapevine cultivation (*Vitis vinifera L.*) has been established as an agricultural alternative with lower water requirements, starting with an area of 1 hectare. Due to its adaptability and productive viability, the area was expanded to 4 hectares by 2024. In this process, six varieties were selected (Merlot, Shiraz, Tempranillo, Grenache, Chenin blanc, and Sauvignon blanc), all of which are well-suited to warm climates characterized by high temperatures and drought conditions, thereby promoting a more efficient use of available resources. With the aim of optimizing water use, in 2024 the initial irrigation system was replaced with a drip irrigation system featuring integrated drippers, which allows for targeted and controlled distribution of water resources. This technology significantly contributes to water savings, reduces weed growth by limiting moisture in unwanted areas, and lowers the risk of diseases associated with excess moisture. Additionally, progress has been made toward more efficient irrigation management, taking into account the crop's water demand based on its phenological stages and climatic conditions, in order to prevent losses due to evaporation or deep percolation. Regarding soil management, mechanical agricultural practices are combined for land preparation and weed control, which interrupt germination and destroy plant tissue without the need for herbicides.





Additionally, composting practices are implemented using waste from the production process, such as grape pomace, which allows organic matter to be returned to the soil as part of a circular economy approach. This strategy helps improve the soil's physical and chemical properties—including pH, acidity, and nutrient availability—as well as increase the concentration of phenolic compounds in the fruit, while simultaneously reducing waste generation and the use of chemical fertilizers. As part of climate risk mitigation strategies, the implementation of anti-hail nets is being considered, which protect the crop from extreme events such as hailstorms, reducing production losses and the need for replanting. These nets help modulate the vineyard's microclimate by reducing direct solar radiation and the temperature above the canopy, which promotes moisture retention and reduces heat stress in the plants.



Together, these actions form part of a comprehensive sustainability strategy aimed at adapting to climate change, taking into account scenarios of higher temperatures and limited water availability. Through resource optimization, the incorporation of biological inputs, crop protection against extreme events, and responsible soil management, the goal is to maintain vineyard productivity with a lower environmental impact, moving toward a more resilient and sustainable production model.



Bodega Vinícola Alere

As a complement to this strategy, Bodega Vinícola Alere has established itself as a hub for innovation and oenological research, equipped with state-of-the-art technology for wine processing and production. Additionally, it incorporates renewable energy systems using photovoltaic cells, helping to reduce energy consumption and the environmental footprint associated with intensive agro-industrial processes.





Upgrade from GrowSafe 6000 to Vytelle 8000 software for feed efficiency evaluation

To achieve genetic improvement in livestock, it is important to objectively measure those traits that have economic value and respond rapidly to genetic improvement. Among these traits, those related to production efficiency and the quality of the meat produced stand out, such as: weight gain at weaning and post-weaning, feed conversion efficiency, reproductive capacity, and carcass quality.

An alternative measure of feed efficiency is Residual Feed Intake (RFI), defined as the difference between an animal's actual feed intake and the estimated intake expected based on its growth and body weight (Koch et al., 1963; Archer et al., 1999). This evaluation is conducted over a specific testing period and can be accurately measured using specialized technology.



The Center for Agricultural Production Research (CIPA, for its acronym in Spanish), aware of the importance of these evaluations, organizes calls for submissions in which cattle are received to evaluate various productive and feed efficiency characteristics. Currently, CIPA is undergoing a technological transition, replacing the GrowSafe 6000 system with the new Vytelle 8000 system, with the aim of modernizing measurement processes and improving the accuracy, analytical capacity, and operational efficiency of the tests. The implementation of the Vytelle 8000 system allows:

- Greater precision in the individual measurement of feed intake.
- Automated and continuous monitoring of feeding behavior.
- Better processing and analysis of production data.
- Reduction of operational errors and optimization of time.
- Generation of more reliable information for genetic selection programs.

With this technological upgrade, CIPA strengthens its commitment to innovation and the development of tools that contribute to genetic improvement and the sustainability of livestock production.





Technological upgrade of the facilities

With the objective of improving the accuracy, efficiency, and reliability of data collection, a comprehensive upgrade of the facility's equipment and software was recently carried out. This upgrade includes:

- DAQ Panel (Data Acquisition Module)
- RTU Panel (Remote Terminal Units)
- Data cables and power supplies
- CPU (Central Processing Unit)



These improvements enable the optimization of individual consumption monitoring, enhance data capture and processing, and generate more accurate results for decision-making in genetic selection and production evaluation programs. In 2025, an evaluation was completed in which a joint study was conducted with MNA of Mexico, titled: "Effect of Lithothamnium calcareum on productive performance, residual feed intake, gastrointestinal barrier integrity, inflammation, and immune response in Simbrah heifers and calves." The study evaluated the inclusion of Lithothamnium calcareum in diets for Simbrah heifers and calves on productive performance, residual feed intake (RFI), gastrointestinal barrier integrity, systemic permeability, and various immunological and inflammatory parameters.

It is expected that supplementation with *Lithothamnium calcareum* will help stabilize ruminal pH, reduce intestinal permeability and systemic inflammation, improve tissue integrity, and enhance the productive performance of feedlot animals.



CIPA 525 Biotype Project (50% Simmental, 25% Angus, and 25% Tuli)

This project emerged as a strategy aimed at developing more sustainable, resilient, and efficient cattle production systems for the environmental conditions of northeastern Mexico. Through the genetic combination of the Simmental, Angus, and Tuli breeds, the project aims to integrate productive, reproductive, and adaptive traits that reduce the environmental impact of livestock farming, optimize the use of natural resources, and strengthen the economic and productive sustainability of regional livestock systems.



The overall objective is to evaluate the productive, reproductive, adaptive, and sustainable performance of a Simmental-Angus-Tuli composite cattle biotype under the environmental and management conditions of northeastern Mexico, with the aim of determining its viability as an alternative for more efficient, resilient, and environmentally responsible beef production systems.

Contribution of the biotype to livestock sustainability The Simmental-Angus-Tuli combination represents an innovative alternative for promoting sustainable livestock farming, as it integrates genetics focused on productive efficiency, climate adaptation, and rational use of resources.



Greater adaptation to climate change

The inclusion of the Tuli breed provides hardiness and heat tolerance, characteristics essential for coping with the high temperatures and periods of drought present in northeastern Mexico. This allows for:

- Reducing heat stress in the animals.
- Reducing production losses in extreme climates.
- Maintain reproductive efficiency under adverse conditions.
- Support grazing systems in semi-arid environments.

More efficient use of resources

The hybrid vigor generated by the combination of the three breeds results in animals with:

- Better feed conversion.
- Higher reproductive efficiency.
- Lower need for replacements.
- Greater productive longevity.

These characteristics help reduce the consumption of resources such as water, feed, and energy per kilogram of meat produced, promoting more efficient and sustainable systems.



Reduced environmental impact

The development of more adapted and efficient animals allows for:

- Better utilization of pastures.
- Reduced losses due to disease and mortality.
- Less pressure on natural resources.
- Meat production with a lower environmental impact per unit produced.

By having functional and resilient animals, the need for intensive treatments and excessive management is reduced, promoting production that is more in balance with the environment.

Contributions of each breed to the sustainable system

Simmental contributes:

- High growth and productive efficiency.
- Good milk production.
- Excellent carcass yield.
- Greater musculature and feed conversion efficiency.





Angus breed

Provides:

- Meat quality and marbling.
- Fertility and early sexual maturity.
- Good reproductive efficiency.
- Higher market value of the final product.

Tuli breed

Provides:

- Hardiness and environmental resilience.
- Heat and drought tolerance.
- Resistance to parasites.
- Ability to adapt to extensive and semi-arid systems.
- Expected outcome of the biotype



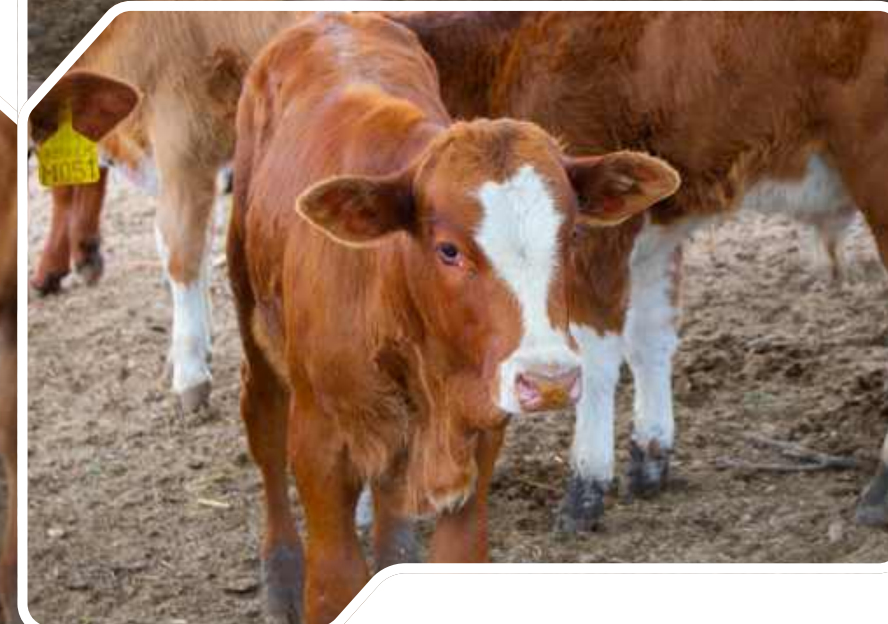
The goal is to obtain animals:

- Adapted to variable climatic conditions.
- Suitable for sustainable grazing systems.
- More efficient in feed conversion.
- With higher fertility and longevity.
- Capable of producing high-quality meat with a lower environmental impact.

Crossbred cows may also stand out for:

- Good maternal ability.
- Efficient milk production.
- Better calf survival.
- Greater reproductive stability in challenging environments.

The CIPA 525 biotype represents a strategic proposal for strengthening sustainable livestock farming in northeastern Mexico. The genetic integration of Simmental, Angus, and Tuli allows for the development of animals that are balanced in productivity, adaptation, and efficiency, promoting livestock systems that are more resilient to current climatic conditions.





◆ Forest School: education, conservation, and climate adaptation

One of the most ecologically and educationally significant projects associated with the Center for Agricultural Production Research (CIPA, for its acronym in Spanish) is the UANL Educational Forest, located in the municipality of Iturbide and covering an area of 1,077 hectares. This site serves as a natural laboratory dedicated to academic training, scientific research, and environmental conservation. The diversity of its ecosystems—comprising oak, pine-oak, cedar, and chaparral forests—contributes to carbon sequestration, regional climate regulation, and biodiversity conservation.

In 2025, the Forest School carried out various activities focused on environmental education, ecological restoration, and forest fire prevention. Among the most significant actions were restoration efforts on 233.36 hectares affected by a forest fire that occurred in 2022. These activities included the construction of firebreaks, the removal of dead plant material via trench ditches, reforestation days, the construction of a forest nursery, maintenance work, the installation of log dams, the rehabilitation of roads, and the installation of a perimeter fence. Additionally, awareness and training campaigns were conducted in coordination with the State Civil Protection Agency, with the aim of strengthening a culture of forest fire prevention and control. Reforestation efforts were also carried out, involving the planting of *Pinus pseudostrobus* trees in affected areas, as well as the production of forest seedlings for institutional restoration programs and support for rural communities. Similarly, projects were promoted for the production of native grass seeds such as *Bouteloua gracilis* and *Bouteloua curtipendula*, used in the rehabilitation of hard-to-reach, steeply sloped areas. These actions promote the recovery of degraded ecosystems and strengthen regional ecological resilience.



The work carried out by CIPA reflects the importance of integrating science, education, innovation, and environmental conservation as pillars of sustainable agricultural development. Through its programs and projects, this Center contributes to strengthening Nuevo León's productive sector, the well-being of rural communities, and the training of professionals committed to protecting natural resources and building more resilient, efficient, and environmentally responsible agri-food systems.





◆ Vallecillo Regional Livestock Development Center

Founded in February 1988 and located in the municipality of Vallecillo, in northern Nuevo León, this center serves as a strategic hub for promoting sustainable agricultural and livestock activities, technological innovation, and comprehensive training of specialized human resources in the rural sector. With a total area of 13 hectares, of which 2 are dedicated to infrastructure and 11 to productive activities, the center develops production models focused on the responsible use and conservation of natural resources.



Throughout its history, the Vallecillo Regional Livestock Development Center has established itself as a platform for collaboration between academia, the productive sector, and rural communities, promoting knowledge transfer, the strengthening of technical capacities, and the adoption of sustainable agricultural practices adapted to the environmental conditions of the semi-arid region of northeastern Mexico.

Additionally, the Center plays a significant role in training students, researchers, and producers, providing opportunities for applied learning, experimentation, and the development of research and innovation projects in the agricultural sector. Through these activities, the Center fosters the creation of technical and scientific solutions that contribute to sustainable rural development and the strengthening of the agricultural sector in Nuevo León.





Among the main activities carried out at the Center are the following:

Agricultural management and tillage practices focused on soil conservation and the sustainable use of natural resources.

The Center implements agricultural management and tillage practices aimed at soil conservation and the sustainable use of natural resources. Additionally, it features 11 productive hectares equipped with an irrigation system that is strategically used only during critical periods, with the goal of optimizing water use and maintaining the productivity of forage crops.

Grain and forage production:

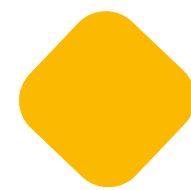
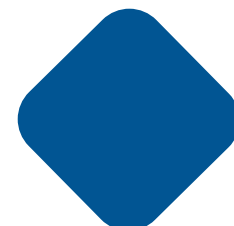
No-till farming: This system is implemented on an area of approximately 3.25 hectares planted with Pretoria, buffel, and leucaena grasses. This management approach helps preserve soil structure, reduce erosion, and promote vegetation cover, contributing to moisture conservation and the sustainable use of natural resources.

Minimum tillage: This is practiced on an area of 3.5 hectares using a subsoiler approximately every two years, with the aim of improving soil aeration, facilitating water infiltration, and promoting crop root development.



Conventional tillage: This system is applied to 1.75 hectares using a plow and harrow for land preparation, primarily for establishing winter crops such as oats and ryegrass, intended for forage production.

Alternative crops: As part of production diversification strategies, 0.25 hectares are allocated to the cultivation of fig trees of the Blanco Texas, Brown Turkey, Black Mission, Celeste, and Grande Texas varieties, as well as 0.25 hectares to the cultivation of improved prickly pear varieties such as Villanueva and Copena F1. These actions contribute to expanding agricultural diversity and strengthening the sustainable use of available resources.





Productive Diversification (Agaves):

Since 2016, agave cultivation has been incorporated as a productive alternative adapted to the region's semi-arid conditions, due to its low water requirements and high climatic adaptability. This species possesses physiological characteristics that promote efficient water use, such as the nocturnal opening of stomata, which reduces moisture loss through evapotranspiration, as well as a deep root system that allows for more efficient use of soil moisture and helps reduce erosion processes.

These characteristics make agave a viable option for strengthening the sustainable use of natural resources and promoting the diversification of production systems.

Currently, the Center has 0.5 hectares dedicated to the cultivation of various agave species, including *Agave americana*, *Agave salmiana*, and *Agave weberi*, as well as some specimens of *Agave montana* and *Agave angustifolia*, established since 2023 as part of strategies for productive adaptation and agricultural sustainability.



Environmental Management Units (Goats):

In 1988, a goat management unit was established. This project is currently being developed with goats of different breeds, such as Boer, Kiko, Saanen, Apinas, and Nubian.

The use of goats for weed control in agave plantations represents an agroecological and sustainable alternative, as it allows the land to be kept clear without relying exclusively on the use of agrochemicals. Grazing helps reduce the presence of weeds, decreasing competition for light, water, and nutrients, while also contributing to fertilization. In this way, it promotes more sustainable management of the production system, constituting an efficient biological control practice within the agricultural ecosystem.





International Goat Workshop 2025:

In 2025, the 2025 International Goat Workshop was held, a workshop designed to disseminate scientific, technological, and production advancements related to the sustainable management of goats. The event featured specialists and speakers from Argentina, Spain, the United States, and Mexico, who shared their experiences and knowledge on topics such as the production, management, processing, and marketing of goat products and byproducts.

This forum helped strengthen knowledge exchange among producers, technicians, students, researchers, and specialists in the agricultural sector, promoting the adoption of best production practices and the development of sustainable strategies for goat production. It also helped strengthen ties between the UANL, the productive sector, and rural communities.



Production of agave and nopal seedlings:

As part of efforts to diversify production and ensure the sustainable use of natural resources, activities are underway to produce and propagate seedlings from agave offshoots and nopal cladodes. These vegetative materials are selected and established under controlled conditions that promote their initial development and ensure the production of healthy, vigorous plants for subsequent transplanting and establishment in the field.

Seedling production contributes to strengthening productive alternatives adapted to semi-arid regions, promoting soil conservation, efficient water use, and the creation of economic opportunities for families engaged in the rural sector. Furthermore, these actions promote the restoration of degraded areas and the development of more resilient and sustainable agricultural systems.





CONSERVATION AND SUSTAINABLE USE OF BIODIVERSITY AND NATURAL RESOURCES



“Efraím Hernández Xolocotzi” Botanical Garden

The Efraim Hernández Xolocotzi Botanical Garden (JEB-EHX, for its acronym in Spanish) at the Universidad Autónoma de Nuevo León is a 10-hectare space that integrates biocultural conservation, environmental education, applied research, and community engagement. Throughout 2025, multiple products and activities that reflect its impact on institutional and social sustainability were developed.





Genetic conservation and ecological restoration

During 2025, seeds were collected from plant species present in the botanical garden, with an emphasis on cacti and plants adapted to arid zones. Approximately 30,000 seeds from 10 cactus species were obtained. Each batch was recorded with photographic evidence and documented traceability, ensuring their availability for ecological restoration and genetic conservation projects.

In 2025, more than 10,000 plants from 6 species were successfully germinated in the JEB-EHX greenhouse, thanks to specialized technical management in ex situ propagation. These plants are intended for ecological restoration programs in arid zones, scientific research projects on the phenology and ecology of at-risk species, and environmental education activities where students and visitors learn about propagation and conservation. This activity is based on the controlled reproduction of native species, avoiding the mass extraction of wild specimens, where each germinated batch is integrated into a documentary traceability system and allocated to uses that strengthen local ecosystems and academic training.

In 2025, more than 10,000 seedlings of 6 species were grown in the JEB-EHX greenhouse



Receipt of specimens confiscated by federal Attorney General's Department for Environmental Protection (PROFEPA, for its acronym in Spanish): The Efraim Hernández Xolocotzi Botanical Garden, accredited as a Wildlife Conservation Management Unit (UMA) under the official registration PVSNL-UMA-IN-1270-NL, was designated by the PROFEPA as the legal custodian of confiscated specimens. This accreditation, based on the General Law of Ecological Balance and Environmental Protection and NOM-059-SEMARNAT-2010, confirms the Garden as a reliable and recognized space for conservation in accordance with Mexican regulations. In September 2025, 12 specimens of *Agave victoriae-reginae* (noa) and 2 specimens of *Beaucarnea recurvata* (elephant's foot) were received, both species listed as at risk in NOM-059-SEMARNAT-2010. The specimens were integrated into the Garden's living collections, with specialized technical management for their recovery and constant monitoring. This not only reinforces the institutional legitimacy of the JEB-EHX but also positions it as a trusted space for environmental authorities, capable of ensuring the responsible stewardship of endangered species and contributing to the fight against the illegal trafficking of wild flora.





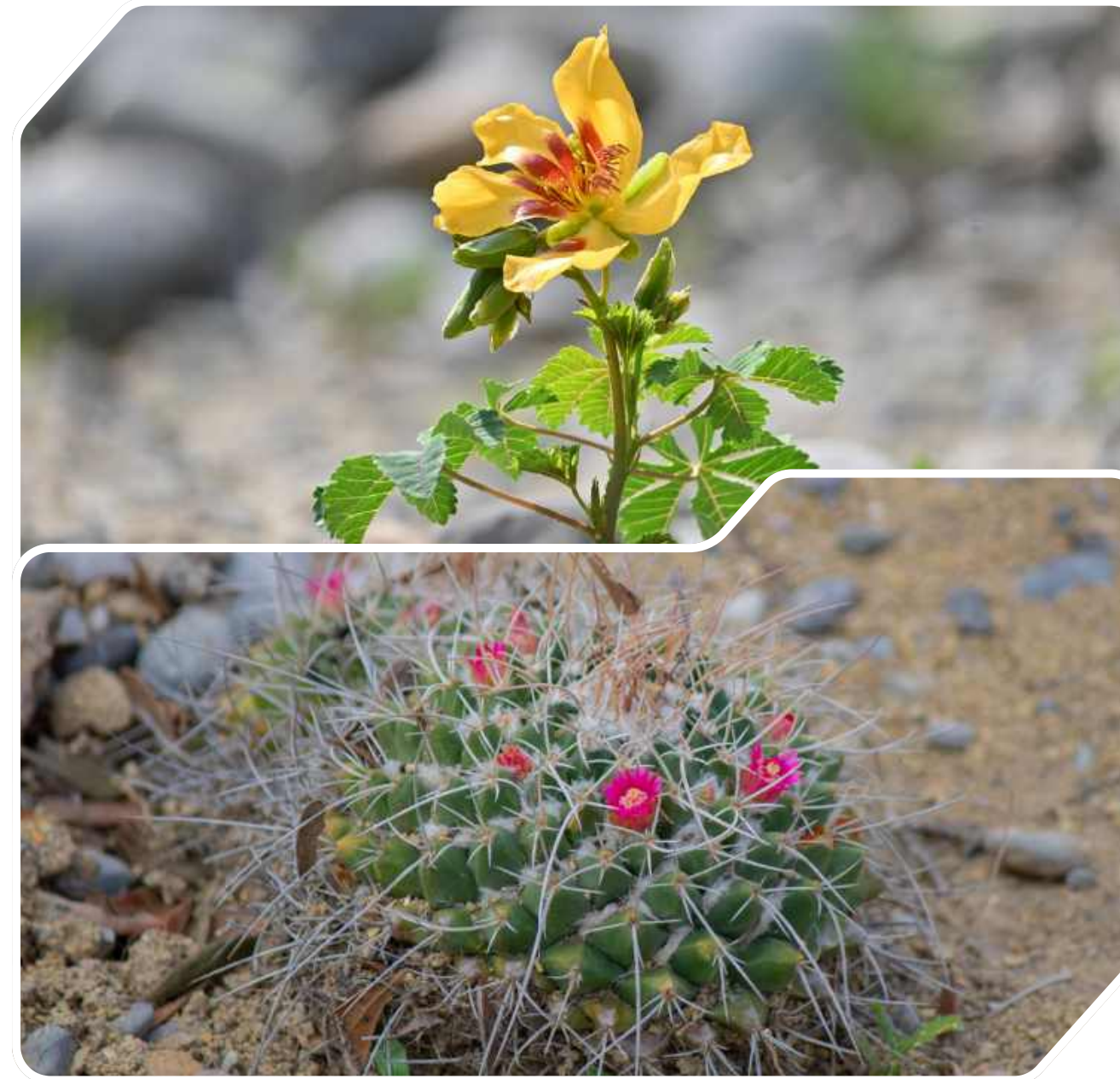
◆ Participatory conservation and sustainable economy

Catalog of species available for sale, adoption, and exchange: A nursery with a capacity for more than 15,000 plants was established, housing over 10,000 cactus species, available to the community through sale, adoption, and exchange. This connects conservation with social participation.

Institutional souvenirs: products such as shirts, cups, and bracelets featuring original images of the Garden were designed. These items strengthen cultural identity and generate additional revenue.



The UANL's JEB-EHX has the capacity to preserve more than 15,000 cactus plants





Environmental education and community engagement

In 2025, various educational guides were developed to reinforce the Garden's mission as a living classroom and a space for scientific outreach. These guides were designed to be accessible to both students and the general public, combining academic rigor with clear and visually appealing language.

Guide to Medicinal Plants: compiles traditional knowledge about species used in folk medicine, linking science and culture. This material reinforces biocultural conservation and the transmission of ancestral knowledge.

Cactus Flower Guide: documents the phenology and characteristics of cactus species, many of which are at risk of extinction. It includes photographs of flowering and data on pollination, making it a valuable resource for research and environmental education.



Guía de Campo de 10 Plantas Medicinales en el JEB en el Jardín Etnobiológico de la UANL, Sede, Linares

Proyecto:
Conservación y Divulgación de la Biodiversidad y Riqueza Biocultural del Noreste de México a través del Jardín Etnobiológico de la Universidad Autónoma de Nuevo León
Fondo: CONAHCYT F003; CLAVE: RENAJEB-2023-10 (3era etapa)



Guía de Flores de 10 Especies de Cactáceas del Jardín Etnobiológico de la UANL Sede Linares, N.L. (Parte 3)

Proyecto:
Conservación y Divulgación de la Biodiversidad y Riqueza Biocultural del Noreste de México a través del Jardín Etnobiológico de la Universidad Autónoma de Nuevo León
Fondo: CONAHCYT F003; CLAVE: RENAJEB-2023-10 (3era etapa)



Guía de Campo de las principales especies vegetales de arbóreas, arbustivas y herbáceas del matorral submontano

Proyecto:
Conservación y Divulgación de la Biodiversidad y Riqueza Biocultural del Noreste de México a través del Jardín Etnobiológico de la Universidad Autónoma de Nuevo León



Submontane Scrub Guide: describes the structure and dynamics of this ecosystem characteristic of northeastern Mexico. It includes photographs, maps, and fact sheets on representative species, allowing visitors to understand the importance of conserving this habitat.

These guides are not merely reference materials; they are used in school workshops, biodiversity fairs, and guided tours, reaching hundreds of students and visitors. Additionally, they are distributed in digital format, which expands their reach and ensures that the knowledge is available to both rural and urban communities.



The importance of these publications lies in their ability to connect science with society, foster community ownership of biodiversity, and strengthen contextualized environmental education. By integrating technical information with traditional knowledge, the guides contribute to sustainability by promoting responsible practices and raising awareness about the conservation of local species and ecosystems.

Development of fact sheets in the Nahuatl language: 10 bilingual fact sheets were developed that integrate scientific information on native species with traditional knowledge. These fact sheets were translated into Nahuatl, an indigenous language with a strong historical and cultural presence in northeastern Mexico.



Each fact sheet describes key aspects of the species, including common and scientific names, traditional uses, conservation status, and management recommendations, accompanied by photographs. By being written in Spanish and an indigenous language, they serve as a bridge between academic knowledge and the cultural heritage of indigenous communities. The significance of these fact sheets lies in the fact that:

- They preserve and revitalize indigenous languages by using them as a vehicle for environmental education.
- They strengthen community ownership of biodiversity, as the fact sheets allow speakers of these languages to access information in their native language.
- They promote inclusion and equity in educational processes, recognizing cultural diversity as an essential part of sustainability.
- They integrate science and tradition, demonstrating that conservation is not limited to the biological realm but also encompasses the transmission of ancestral knowledge.
- Furthermore, by being available in digital format, their reach extends to other regions, establishing the JB-EHX as a leader in inclusive and biocultural environmental education.





II Biodiversity Fair of the Efraim Hernández Xolocotzi Botanical Garden: held at the Linares City Theater. The event brought together more than 700 elementary school students, making it one of the most significant large-scale educational activities of the year.

The fair included a wide range of thematic workshops: Wildlife Monitoring: fingerprint identification, camera trapping, and birdwatching.

Medicinal plants: traditional uses and preservation of ancestral knowledge.

Waste management: activities on sorting and recycling, linked to the students' daily lives.

Endangered Species: an exhibition on protected flora and fauna, with a focus on NOM-059, identifying the main threats to these species, and conservation efforts.



In addition, recreational activities were held, such as a biodiversity lottery, painting of native species, and nature drawing, which fostered children's creativity and hands-on learning.

The fair also featured video exhibits on wildlife, showcasing footage captured via camera traps and educational segments, as well as a gallery of drawings from previous "Drawing Native Wildlife" contests. This allowed attendees to appreciate both local biodiversity and the artistic contributions of other children and youth.

Germination workshops in rural community schools: more than 300 students and teachers participated in germination workshops, where they learned about the propagation of native species and community reforestation was promoted.

Best Practices Workshop with Huerto Integra A.B.P.: The workshop focused on therapeutic horticulture, integrating emotional well-being with the conservation of aromatic plants. The significance of this workshop lies in the fact that it transforms horticulture into a tool for community well-being and social resilience, while also promoting the conservation of useful and traditional species. By integrating the therapeutic dimension with environmental education, the JEB-EHX demonstrates that sustainability is not only measured in ecological terms but also in the ability to create inclusive, healthy, and culturally meaningful spaces.



Research and monitoring

Camera Trap Manual: The Efraim Hernández Xolocotzi Botanical Garden Camera Trap Manual was developed as a technical guide for wildlife monitoring. The document provides detailed procedures for installing, calibrating, and maintaining camera traps, as well as methodologies for data recording and analysis.

The manual includes:

- Installation protocols for different habitats to ensure the capture of images representative of the local fauna.
- Technical recommendations on camera location, height, angle, and exposure time to optimize the quality of the recordings.
- Recording and traceability formats to ensure that each observation can be used in scientific research and conservation projects.
- Practical examples of species detected in the Garden, such as medium-sized mammals, birds, and reptiles, which serve as evidence of the value of monitoring.



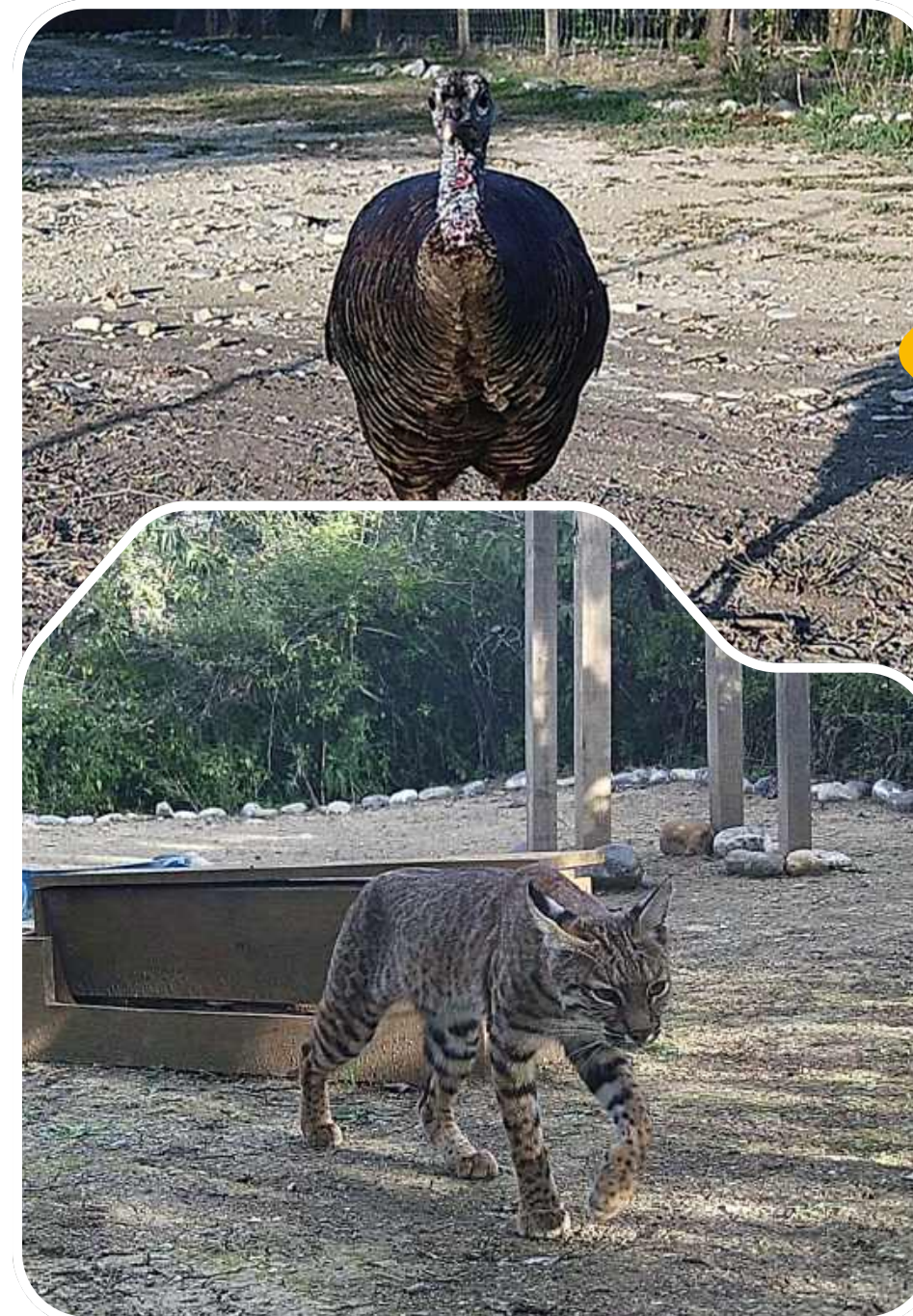
Its uses are manifold:

Scientific research: it enables the creation of reliable databases on the presence, abundance, and behavior of wild species, many of which are at risk.

Environmental education: It is used in school and university workshops, where students learn modern techniques for wildlife monitoring and analysis.

Responsible conservation: as a non-invasive tool, camera trapping avoids the capture or disturbance of animals, promoting ethical and sustainable practices.

The importance of the manual lies in the fact that it establishes the Garden as a methodological benchmark for other conservation areas by offering a technical resource that combines scientific rigor with educational accessibility. Furthermore, it strengthens the JEB-EHX's capacity to integrate applied research with community outreach, consolidating its role as a living laboratory for biocultural conservation.





Academic Engagement and National/International Outreach

Meeting in Paquimé and Belgrade Charter Colloquium: We participated in two highly significant academic events: the Meeting of Ethnobiological Gardens in Paquimé, Chihuahua, and the Belgrade Charter Colloquium.

Meeting in Paquimé:

This event brought together representatives from ethnobiological gardens in northern Mexico to share experiences in biocultural conservation and strengthen regional cooperation. The JB-EHX presented its progress in cactus propagation, environmental education, and community engagement, highlighting the capacity of a 10-hectare site to generate national impact. Additionally, the team participated in workshops and presentations addressing topics such as ecological restoration, social inclusion, and the recovery of traditional knowledge.

Belgrade Charter Colloquium:

Organized by the botanical garden to commemorate the 50th anniversary of the Belgrade Charter (1975), a foundational document for environmental education worldwide, this colloquium provided an opportunity to reflect on the principles of sustainability, equity, and community participation. The Garden contributed its experience in school programs, biodiversity fairs, and the production of bilingual materials, demonstrating how international guidelines are applied in a local and regional context.



The importance of these engagements lies in the fact that they establish the JEB-EHX (for its acronym in Spanish) as an academic and cultural actor capable of engaging in dialogue within spaces for historical and scientific reflection. By sharing its experiences in conservation, education, and inclusion, the Garden positions itself as a national leader within RENAJEB and as an example of how global principles of environmental education can be translated into concrete actions for restoration and outreach.

Mexican and Ibero-American Congress on Ecological Restoration: The Garden participated in the Mexican and Ibero-American Congress on Ecological Restoration, one of the most significant events in the field of ecosystem conservation and recovery. The Garden welcomed more than 70 international and national attendees, who took guided tours of the facilities. During the tours, the Garden's main products were presented: educational guides, seed catalogs and germinated species, technical manuals, and bilingual materials. Visitors were able to see firsthand the progress made in propagating at-risk cacti, environmental education programs with local schools, and biocultural inclusion strategies. This participation reinforced the Garden's international profile, positioning it as a regional leader within the National Network of Ethnobiological Gardens and as a model that can be replicated in other contexts.



Simpósio
Experiencias de los Jardines Etnobiológicos para la Conservación Biocultural en Zonas Áridas y Serranas

En conmemoración del Día Nacional de la Conservación en México, la Renajeb a través de los jardines etnobiológicos de Tamaulipas, Nuevo León, Guanajuato y Durango, te invitan a participar y reflexionar sobre el conocimiento biocultural de las comunidades locales

27
Noviembre
9:00 am

facebook
@jardines
etnobiologicos



RENAJEB Symposium on biocultural conservation: We participated in the symposium “Experiences of Ethnobiological Gardens for Biocultural Conservation in Arid and Mountainous Areas,” organized by the National Network of Ethnobiological Gardens (RENAJEB, for its acronym in Spanish) in commemoration of National Conservation Day in Mexico. The event brought together representatives from the gardens in Tamaulipas, Nuevo León, Guanajuato, and Durango, and it was broadcast live on Facebook, which expanded its digital reach and allowed for interaction with diverse audiences.

The JB-EHX’s participation consisted of a presentation on conservation efforts carried out at the Linares site, which highlighted, among many other things, progress in the propagation of at-risk cacti, environmental education programs with local schools, linguistic inclusion through technical fact sheets in indigenous languages, and the development of accessible infrastructure. These topics demonstrated how a 10-hectare site can become a model of biocultural conservation with social and academic impact.

Agreements and partnership letters with gardens in northern Mexico: collaboration with Baja California, Chihuahua, Durango, Tamaulipas, and other states, strengthening regional cooperation.

The book “Culture of Conservation in Ethnobiological Gardens of Northern Mexico” was completed, an academic publication that compiles experiences and contributions from various gardens in the region, including those in Chihuahua (Paquimé), Coahuila, Durango, Tamaulipas, and Nuevo León.



CULTURA DE LA CONSERVACIÓN EN JARDINES ETNOBIOLÓGICOS DEL NORTE DE MÉXICO



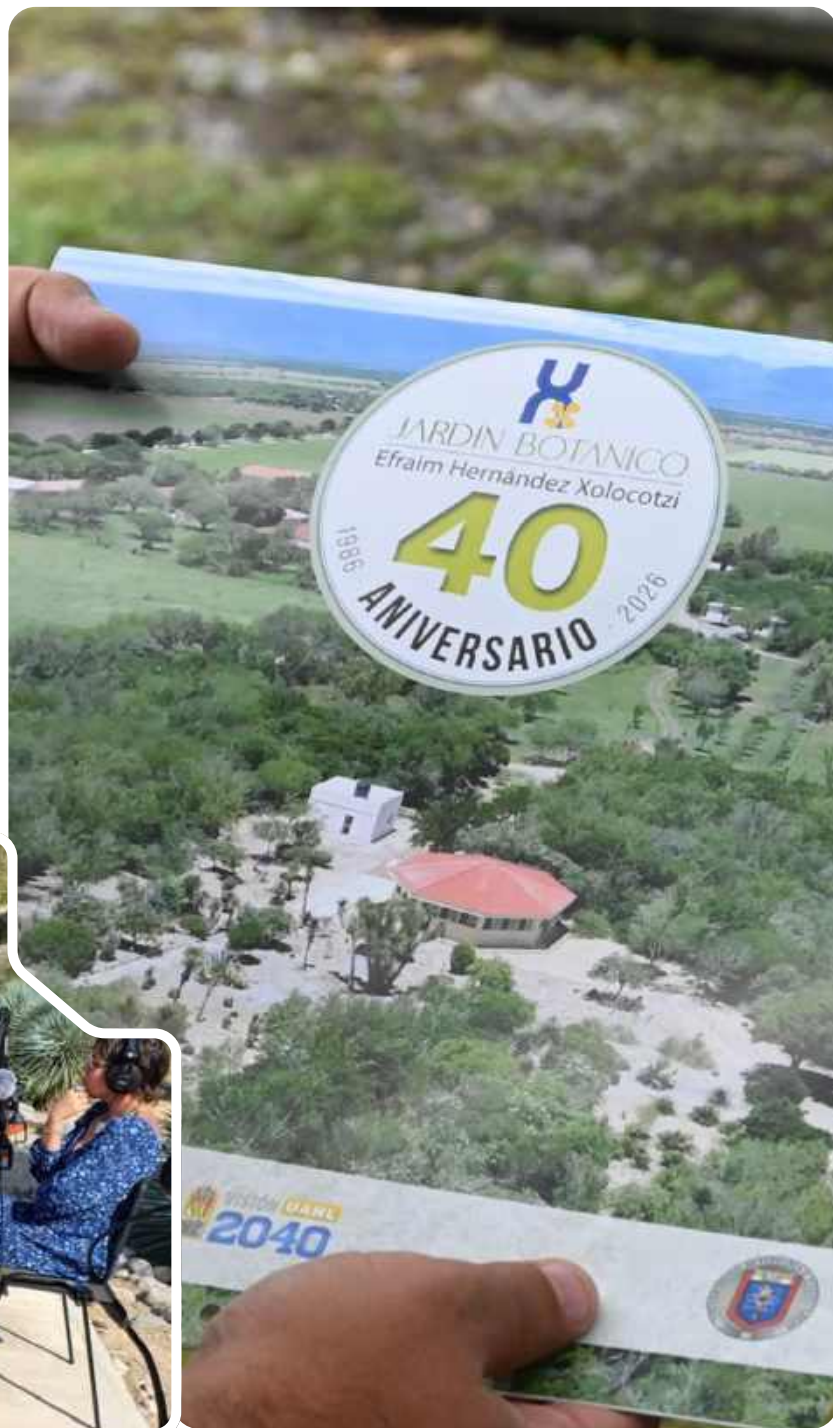


Scientific outreach and digital communication

A podcast on plant tissue culture was produced: it spread biotechnological innovation applied to the propagation and conservation of forest resources, with the participation of specialists from the UANL.

Official social media accounts: Facebook, Instagram, Twitter/X, LinkedIn, YouTube, and TikTok. Regular posts are made about native biodiversity, endangered species, and educational activities, reaching thousands of people.

40th Anniversary Institutional Calendar: combines historical memory with environmental awareness, including commemorative dates and photographs of flora and fauna.



Inclusive and sustainable infrastructure

Signage and ramps for people with disabilities: ensure universal accessibility along trails and in demonstration areas.

Demonstration area for traditional crops: At the Efraim Hernández Xolocotzi Botanical Garden, a demonstration area for traditional crops was established, where local agricultural practices such as corn and bean cultivation are preserved. This space functions not only as an experimental plot but also as a living classroom that connects biological conservation with the agricultural heritage of surrounding rural communities.

The initiative was designed with the traditional knowledge of workers and residents from nearby communities in mind, who contributed planting techniques, soil management, and crop rotation practices inherited from previous generations. By integrating this knowledge with academic support from the School of Forestry Sciences, a model was created that combines science and tradition.





◆ UANL Ethnobiological Garden (JEB, for its acronym in Spanish)

The Marín campus of the Ethnobiological Garden at the Universidad Autónoma de Nuevo León (UANL) is a facility dedicated to the conservation, research, and outreach regarding ethnobiologically significant species found in the north-central region of Nuevo León. Since 2019, and with support obtained through various calls for proposals from National Council for Humanities, Sciences and Technologies (CONAHCYT, for its acronym in Spanish) and the current Secretariat of Science, Humanities, Technology and Innovation (SECIHTI, for its acronym in Spanish) (2019, “Strengthening the capacities of the Ethnobiological Gardens of Nuevo León to promote the conservation, research, teaching, and scientific outreach of regional biodiversity,” grant number 304982; 2021 “Consolidation of the Ethnobiological Garden of the Universidad Autónoma de Nuevo León for regional development and conservation of biocultural wealth” grant number 321347; 2023 “Conservation and dissemination of biodiversity and biocultural wealth in northeastern Mexico through the Ethnobiological Garden of the Universidad Autónoma de Nuevo León” code RENAJEB-2023-10), work has been carried out on the development and establishment of the garden, with the aim of creating a site that safeguards the state’s biocultural heritage and facilitates universal access to knowledge about the natural resources of Nuevo León’s arid ecosystems. This garden is a member of the National Network of Ethnobiological Gardens, alongside 27 gardens from different states across the country.

The JEB is located about 45 km from the Monterrey metropolitan area, in the municipality of Marín, Nuevo León, within the Marín Academic-Experimental Campus of the UANL School of Agronomy. The geographic coordinates are: 25° 52.452' N; 100° 2.799' W, and it sits at an elevation of 455 meters above sea level. The area is dominated by Tamaulipan thorny scrub and microphyllous desert scrub. At this site, the JEB consists of four main areas that together cover 3.5 hectares:

- 1. Collectarium.** An area featuring in vivo botanical collections, accompanied by descriptive labels with representative specimens of aromatic species, plants for industrial use, shrubs and trees, cacti, agaves, and palms; currently, there are 62 species in this area.
- 2. Conservatory.** Located next to La Juventud dam, it consists of a natural ecosystem with interpretive trails, a bird-watching spot, and a palapa serving as a gathering place.
- 3. Germplasm bank.** A collection of seeds from native species and cultivated varieties of ethnobiological importance.
- 4. Native Plant Nursery.** For the propagation of native and naturalized plants, the collection primarily includes cactus and agave species.



The UANL Ethnobiological Garden is home to **62** species of native flora



By the end of 2024, the JEB UANL (for its acronym in Spanish) Marín had expanded to the town of Arameberri, Nuevo León, located at the La Ascensión Academic Unit (UALA, for its acronym in Spanish) in the municipality of Arameberri, Nuevo León, 300 km from the main campus in Gal. Escobedo, N.L. This ethnobiological garden was established on a 4.5-hectare plot with the aim of expanding the plant collections of the state of Nuevo León, including species typical of the southern region of the state under contrasting weather conditions, as this town is located at an elevation of 2,000 meters above sea level; it has a temperate to semi-arid climate with an average annual temperature ranging from 12°C to 18°C. Summers are moderately warm (average 19°C–20°C) and winters are cold, with January being the coldest month (average 9°C–10°C). Initial work consisted of a floristic survey of the site, focusing on the conservation of *Opuntia* species in the first phase. The selected plot was developed with a path that winds through trails and covers the entire area, spanning over 1 km in length. Work is currently underway to expand the agave and yucca collections. Figure 1 shows some of the initial work done to develop the garden.

Different aspects of the preparation and development of the Ethnobiological Garden at UALA. La Ascensión, Aramberri, N.L.



The JEB UANL covers an area of 4.5 hectares at the La Ascensión Academic Unit, located in Aramberri, Nuevo León, Mexico



Flora Collections

Native plant species thrive best in their natural habitats, as the climate, soil, and overall environment are ideal for their growth; therefore, native species have an advantage over introduced ones. In Nuevo León, we find a diverse flora, with a large number of genera and species of trees, shrubs, palms, maguey plants, and cacti. Similarly, this diversity is also reflected in the parts of the plants that can be used (leaves, fruits, stems, flowers, primary or secondary roots, shoots) as well as in their traditional uses (medicinal, ornamental, human and animal food, construction, environmental, metabolite extraction, textiles, and gastronomy) (Alanís-Flores and González-Alanís, 2003).

Currently, one of the main focuses of study and conservation at the Ethnobiological Garden of the Universidad Autónoma of Nuevo León, Marín Campus, is native plant species; there are various plant collections at the four conservation sites mentioned above.





As of 2025, the JEB UANL
Ethnobiological Garden has records of
250 species of wildlife

Images of wildlife species captured by camera traps. Ocelots (top left), white-tailed deer (top right), coyote (bottom left), and collared peccary (bottom right).

Fauna Collections

The UANL Marín Campus Ethnobiological Garden (JEB) is located less than 12 km from the Monterrey metropolitan area, surrounded by scrubland typical of the Tamaulipas Thorny Scrub vegetation, where the region's main species include the cottontail rabbit (*Sylvilagus floridanus*), the California hare (*Lepus californicus*), wild turkey (*Meleagris gallopavo*), collared peccary (*Pecari tajacu*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), white-tailed deer (*Odocoileus virginianus*), coyote (*Canis latrans*), Bobcat (*Lynx rufus*), desert horned lizard (*Phrynosoma cornutum*), desert tortoise (*Gopherus agassizi*), rattlesnake (*Crotalus* sp.), and occasionally black bear (*Ursus americanus*).

The JEB photo library contains records of approximately 250 species of fauna, the majority of which are bird species (230 species), for which scientific illustrations used for educational purposes are also available; In addition, there are both photographic and video records of mammal and reptile species, which were obtained through camera trapping (Figure 3). Notable among these are the following species: coyote, raccoon, collared peccary, white-tailed deer, wildcat, armadillo, desert horned lizard, and desert tortoise. The area is home to the “La Juventud Dam,” where more than 230 species of birds—including both migratory and resident species—have been observed.

Among the main activities carried out by the JEB Marín team in 2025 are the following:

1. Flora inventory. An inventory was conducted of the plant species present in the Collectarium area of the UANL Ethnobiological Garden's Marín campus. Currently, there are 61 species (more than 1,800 individuals), which belong primarily to the following botanical families: *Cactaceae*, *Agasperaceae*, *Fabaceae*, and *Lamiaceae*. The collection is expected to grow in the coming years, as it has to date.



2. Fauna monitoring. Camera traps were placed at various points within natural vegetation in the municipality of Marín (within the UANL Marín experimental campus facilities) and in the municipality of Aramberri (within the School of Agronomy- UANL La Ascensión experimental academic campus). Various wild species of mammals (including: collared peccary, wildcat, white-tailed deer, coyote, raccoon, armadillo) and birds (more than 200 species to date, including wild turkeys, collared parakeets, northern cardinals, brown herons, green herons, kingfishers, etc.).



3. List of native species cultivated in vitro. The list includes the quantities available for each plant species, whether in vitro (shoots or seedlings) or as plants acclimated and adapted to a growing medium. It should be noted that the species mentioned in this list were initially grown in vitro from seeds or other types of explants (microcuttings), which were disinfected to prevent the presence of microorganisms, and subsequently incubated under controlled conditions of temperature, photoperiod, and relative humidity. After incubation, the in vitro seedlings or shoots were counted, and for some species, growth continued in another culture medium or they were transferred to acclimatization conditions.

4. The multilingual dictionary on plants of ethnobotanical importance in Nuevo León was compiled by selecting 300 terms related to the botanical aspects of morphology, ecology, and conservation of plant species in Nuevo León; it includes the concept, definition in Spanish, and its translation into the Tepehuana language. The document represents version 1.0, which will be improved by increasing the number of words in subsequent stages.





5. Braille plaques for a sensory garden. Fifteen plaques were created for plant species, including their translation into Braille. The species were selected based on their aromatic and medicinal characteristics; each plaque includes the common name, scientific name, botanical family, and a brief description of uses and/or properties. The signs were made of acrylic, measuring 30 x 30 cm, with vinyl printing on the back; a perforated aluminum plate was attached for the Braille translation. The signs will be placed next to each plant species within the UANL Marín Campus Ethnobiological Garden, creating a sensory-themed space.

6. Analysis of the Marketing Chains for Pine Nuts and Native Corn from Nuevo León. Focusing on two plant species of particular importance due to their utilization in the state of Nuevo León, this study analyzed various aspects related to the marketing chains for pine nuts derived from *Pinus cembroides* and native corn from Nuevo León. To this end, interviews were conducted with local producers, and information was gathered from online databases and academic documents.



7. Distribution maps of three plant species in Nuevo León. The species selected were the stone pine (*Pinus cembroides*), lechuguilla (*Agave lechuguilla*), and mesquite (*Neltuma ssp.* and *Prosopis ssp.*). For each selected species, a literature review was conducted using open-access databases and scientific documents. Geographic locations reported by various authors for the state of Nuevo León were considered and plotted on each of the maps. Additionally, information on each species regarding its botanical description, habitat, and uses is included.

8. Two videos on plant species of ethnobotanical importance in Nuevo León. Two videos were produced to showcase aspects related to the conservation and utilization of plant species of ethnobotanical importance. The video "Methods of Propagating Native Species" focuses on demonstrating conservation activities through the in vitro germplasm bank established for the conservation of native plants. The second video, "Utilization of natural resources by regional producers," was produced to present information gathered in the community of Las Crucitas, in the municipality of Galeana, Nuevo León, where a group of eight agricultural producers shared their experience in the collection and marketing of pine nuts.



9. Report on native plants with metabolites used in the control of weeds, pests, and diseases. The report was prepared using information obtained from research conducted at School of Agronomy -UANL by collaborators from the JEB UANL (for its acronym in Spanish) Marín campus; it describes the most notable results regarding the use of plant extracts as bioherbicides and pest and disease control agents. It also includes sources cited in various scientific documents on plant species reported to be distributed in Nuevo León and northern Mexico.

10. Collaboration at the national level with the National Network of Ethnobiological Gardens (RENAJEB, for its acronym in Spanish). Staff from the JEB UANL Marín campus visited the Tabasco JEB in Huimanguillo and attended the meeting of ethnobiological gardens held as part of the Mexican Botanical Congress in Villahermosa, Tabasco. At these meetings, collaborative ties with JEBs in neighboring states were strengthened, and the team actively participated in various outreach activities.





GERMPLASM BANK

The UANL School of Agronomy (FA, for its acronym in Spanish) has two germplasm banks on the Marín and La Ascensión academic-experimental campuses. The purpose of these facilities is to store seeds under controlled conditions of temperature ($4^{\circ}\text{C} \pm 2$) and humidity ($\leq 20\%$). This facility enables the preservation of germplasm, and the collections include samples of primary food importance, such as native maize varieties and other regional crops like sorghum, oats, and wheat, among others (with over 600 accessions). In addition, 46 accessions (more than 2,000 seeds) of native species have been added to this repository, collected primarily on the campuses of the UANL School of Agronomy; in this case, these are shrubby and herbaceous plants of medicinal, industrial, ornamental, and ecological importance.

In addition, there is an additional germplasm bank at the La Ascensión Academic Unit (UALA), which the School of Agronomy maintains in the Ejido La Ascensión, Aramberri, N.L., where the seed collection consists primarily of native corn varieties from the southern part of the state, with approximately 100 accessions and varying seed quantities. The collections include maize from the municipalities of Aramberri, Galeana, Zaragoza, Dr. Arroyo, and Mier y Noriega. Additionally, this collection includes 25 local genotypes of beans, oats, and sunflowers, among others.



In 2025, more than **2,000** seeds of native species were collected





As part of the commitment to safeguard part of the ethnobotanical heritage of the state of Nuevo León, various activities and initiatives have been carried out to raise awareness of the importance of conserving plant genetic diversity. Examples of these achievements, which were realized in 2025, are described below:

1. Compilation of a catalog of native maize varieties from Nuevo León. Based on collections of native maize from southern Nuevo León, a catalog was compiled containing information on the collected samples in the form of descriptive fact sheets accompanied by photographs of the materials obtained. The document serves as a reference on the genetic diversity of native maize from southern Nuevo León, primarily in the municipalities of Galeana, Aramberri, Dr. Arroyo, Zaragoza, Mier, and Noriega.



2. Creation of a poster on native maize varieties of Nuevo León. In addition to the native maize catalog, the decision was made to create an outreach material on this important topic that could be consulted by the general public. To this end, work was done on an outreach poster about the native maize of Nuevo León, which will be available in both physical and digital formats, on social media, and on the official website of the UANL Ethnobiological Garden.



3. "Trilingual Spanish-Nahuatl-Tepehuano Seminar". An outreach event was held to share with diverse audiences the importance of botanical knowledge and its relationship with indigenous languages. The event was attended by agricultural producers from the region, students from the FA-UANL La Ascensión campus in Aramberri, Nuevo León, as well as faculty and administrative staff.





Conservation and sustainable use of biodiversity and natural resources

The Universidad Autónoma de Nuevo León (UANL) recognizes that the biodiversity and natural resources under its stewardship constitute a strategic asset for the environmental, social, and academic well-being of the institution and society. The University's territorial presence across seven campuses and more than 3,800 hectares spread across 36 of the 51 municipalities in the state of Nuevo León confers upon it a significant responsibility regarding conservation, ecological restoration, and sustainable land management.

This extensive geographic coverage allows the university's campuses to harbor a remarkable diversity of ecosystems representative of the region, including forested urban areas, xerophytic scrub, grasslands, experimental agricultural areas, bodies of water, wetlands, riparian corridors, and mountainous areas with native vegetation. Consequently, the university campuses function as reservoirs of wild flora and fauna, providing refuge for pollinating species, resident and migratory birds, reptiles, small mammals, and a wide variety of organisms essential to ecological balance.



Due to its extensive geographic coverage, it is home to a remarkable diversity of ecosystems

Aware of this environmental value, the UANL promotes ongoing initiatives aimed at the protection and sustainable use of its natural capital. These include tree-planting programs with native species, restoration of degraded areas, soil conservation, responsible water management, fire prevention, environmental quality monitoring, control of invasive species, and the strengthening of green corridors that promote ecological connectivity between habitat fragments. Likewise, the rational use of natural resources is promoted through criteria of efficiency, regeneration, and reduction of environmental impacts.





University campuses also function as living laboratories for teaching, scientific research, and applied innovation. In these spaces, projects related to ecology, climate change, forest management, sustainable agriculture, water quality, environmental restoration, and the conservation of native species are carried out, generating useful knowledge to address the region's socio-environmental challenges.



Similarly, the University fosters an institutional culture of respect for nature through programs in environmental education, volunteerism, citizen science, and community participation. These actions strengthen the ecological awareness of students, academic staff, and administrative personnel, promoting responsible lifestyles and a relationship of respect and harmony with their natural environment.

Through this comprehensive approach, the Universidad Autónoma de Nuevo León reinforces its commitment to biodiversity conservation and the sustainable use of natural resources, contributing to the ecological resilience of Nuevo León and the achievement of the Sustainable Development Goals, particularly those related to climate action, life on land, and sustainable cities.





UNIVERSITY BIODIVERSITY AND FOREST CAPITAL MONITORING PROGRAM

The Universidad Autónoma de Nuevo León's (UANL) forest capital and biodiversity monitoring program is an institutional strategy aimed at conserving, restoring, and sustainably managing the natural resources under its stewardship. Through this program, the UANL promotes systematic actions for the assessment, technical monitoring, and sustainable management of ecosystems, species, and environmental services present on its university campuses, experimental stations, and other land areas distributed throughout the state of Nuevo León.

The program's central objective is to generate reliable scientific information that enables the assessment of the conservation status of the university's natural heritage, the identification of environmental risks, and the design of intervention measures aimed at strengthening institutional ecological resilience. To this end, standardized field methodologies, georeferencing tools, cartographic analysis, geographic information systems, biological monitoring, and specialized databases are employed to facilitate evidence-based decision-making.







Forest resource inventories of university campuses

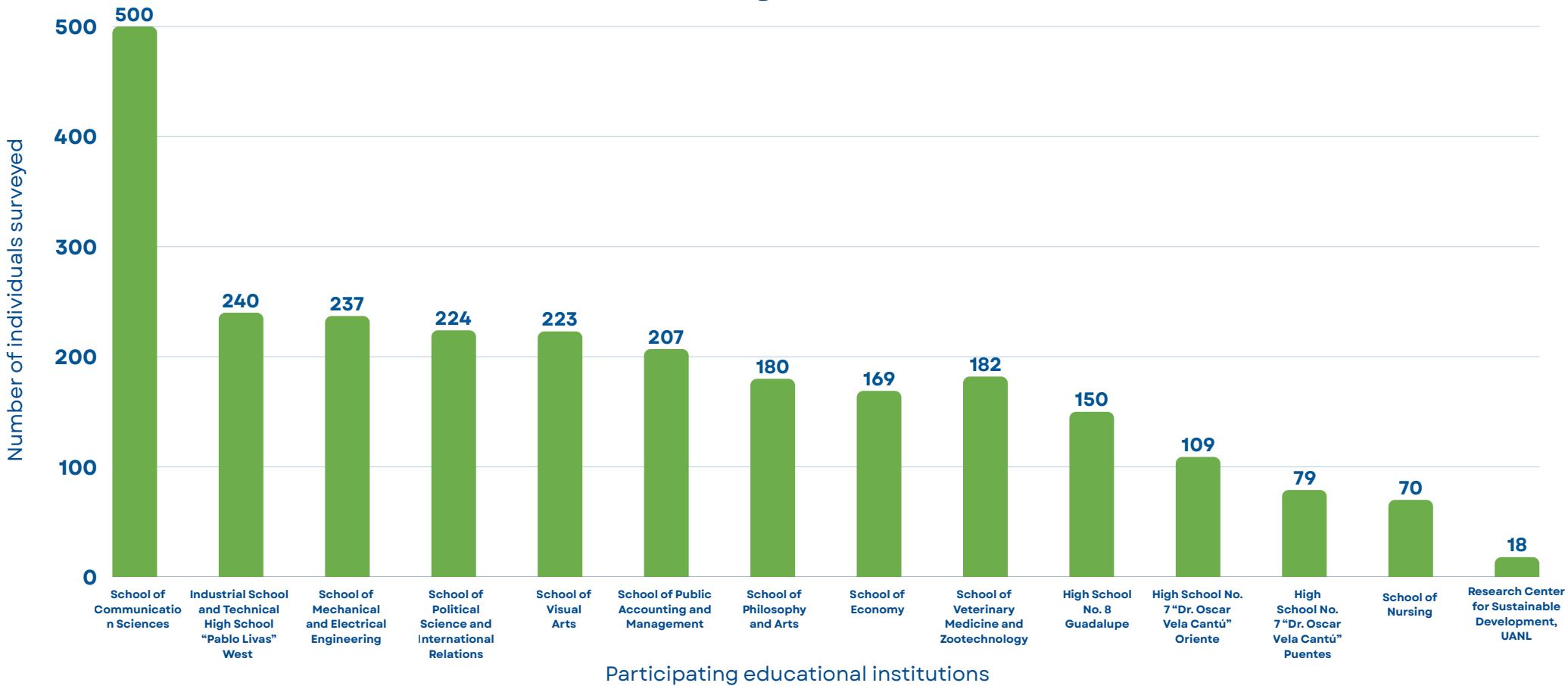
One of the program’s priority components is the assessment of the university’s forest resources. The trees on academic and administrative campuses represent a strategic asset that contributes to carbon sequestration, oxygen production, the retention of air pollutants, rainwater infiltration, the reduction of the urban heat island effect, and the provision of habitat for multiple species of flora and fauna. Likewise, these green spaces promote the physical and emotional well-being of the university community by offering areas for socializing, recreation, and contact with nature.

In this context, beginning in 2022, the UANL is carrying out a project titled “Assessment of the current state and proposal for sustainable management of the forest resources of university facilities,” led by the Project Development Department of the Secretariat of Sustainability.



In 2025 **4** forest resource inventories were conducted, bringing the total to 16

Individuals registered at the UANL





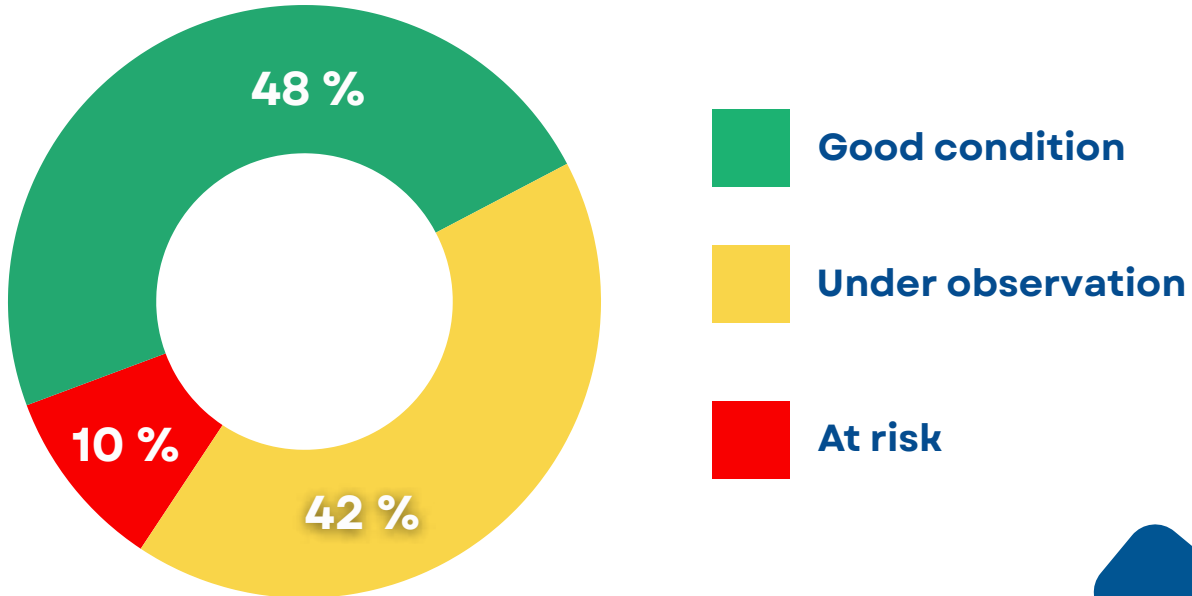
By the end of 2025, 14 assessments had been conducted on university campuses and two additional ones in public spaces of high ecological importance, establishing a technical foundation for institutional environmental planning.

In total, 3,641 trees located across an area of 49.33 hectares were surveyed and evaluated at university facilities and ecologically significant public spaces.

Based on the physical conditions and phytosanitary status observed in all individuals surveyed on university campuses, 48% of the trees are in optimal condition, 41% remain under observation due to dry branches, crown obstruction by wiring, diseased trees, and invasive species, and 10% are at risk.



Phytosanitary condition of surveyed trees



These inventories have provided insights into variables such as species composition, dendrometric measurements, phytosanitary status, vegetation cover, population structure, and maintenance or replacement needs for the trees on university campuses.

Additionally, the program promotes ecological restoration efforts, afforestation with native species, responsible water management, soil conservation, control of invasive species, and environmental education for students, school, and staff. In this way, the Universidad Autónoma de Nuevo León strengthens the protection of its natural capital, improves the environmental quality of its campuses, and reaffirms its leadership as an institution committed to sustainability and climate action.

As of 2025,
3,641
trees located on an area of
49.33 ha
hectares have been
surveyed and assessed



◆ Tree planting program for university campuses and facilities

Universidad Autónoma de Nuevo León's Academic Facilities Tree Planting Program is an institutional strategy aimed at strengthening the environmental resilience of university campuses in the face of the effects of climate change and the accelerated urbanization process that has transformed the Monterrey Metropolitan Area over the past decades.

Over the past 25 years, unplanned urban expansion—driven largely by economic growth and migration—has led to a significant decrease in areas covered by natural vegetation. In this context, the university's tree-planting initiative represents an exemplary effort in ecological restoration and the recovery of urban green space, sending a clear message to authorities and the public about the need to integrate nature into the city's planning and development.

Since 2024, the UANL has been promoting this program under the coordination of the Project Development Directorate of the Secretariat of Sustainability. As of December 2025, two tree-planting events were held with the participation of five university departments, during which 127 trees of native species were planted. These trees were selected for their adaptation to the regional climate, with average diameters of two inches and heights of approximately 2.5 meters.



Through 2025, two tree-planting events have been held, during which **127** native trees were planted





Among the main environmental benefits is carbon dioxide capture, which helps mitigate greenhouse gas emissions. Additionally, the trees act as natural filters by trapping pollutants such as PM10 and PM2.5, improving air quality and promoting public health. They also increase oxygen production, regulate temperature through shade and evapotranspiration, reduce the urban heat island effect, and promote rainwater infiltration, thereby strengthening aquifer recharge and the hydrological balance.

Furthermore, tree planting promotes the creation of habitats for birds, pollinators, and other wildlife species, providing shelter, food, and breeding grounds. This increases local biodiversity and strengthens the ecosystem services essential for a sustainable city.

The social benefits are also significant. The presence of trees and green spaces creates areas of thermal comfort, rest, and social interaction for students, school, staff, and visitors. Various studies have shown that daily contact with nature helps reduce stress, improve concentration, encourage physical activity, and strengthen mental health.

The results obtained through the UANL Tree Planting Program have demonstrated that it is possible to create healthy, resilient, and environmentally responsible educational spaces.





◆ Wildlife monitoring program on urban campuses

The Wildlife Monitoring Program on Urban Campuses at the Universidad Autónoma de Nuevo León (UANL), promoted by the Project Development Department of the Secretariat of Sustainability, is an institutional strategy aimed at identifying, recording, and monitoring the species present on university campuses, recognizing these campuses as strategic areas for biodiversity conservation in the Monterrey Metropolitan Area.

This program takes on special relevance in an urban area characterized by rapid urban growth and the progressive reduction of natural ecosystems. In this context, university campuses function as urban oases that provide shelter, food, breeding sites, and movement corridors for numerous species of birds, mammals, and other biological groups. Without these green spaces, many wildlife populations would face greater ecological pressures and a higher risk of disappearing from the urban environment.

The study was conducted based on the principles of island biogeography theory, which posits that patches of vegetation embedded within urban matrices can function as “ecological islands,” whose biological richness depends on their size, environmental quality, and connectivity with other natural areas. From this perspective, the UANL campuses represent strategic nodes that facilitate species mobility between ecological remnants such as hills, rivers, parks, and other metropolitan green areas, thereby strengthening regional biological connectivity.

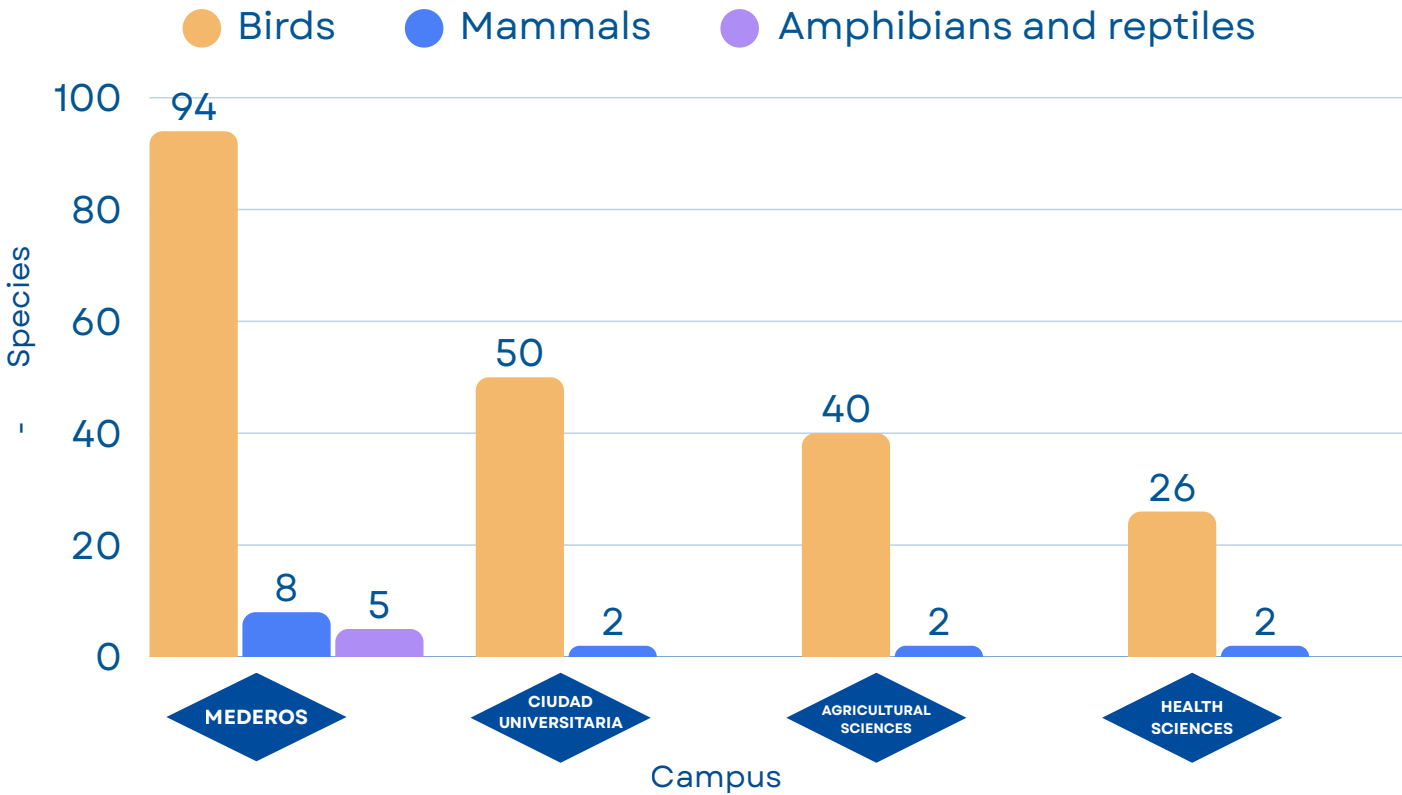




Between June and December 2025, a monitoring campaign was conducted on the Ciudad Universitaria, Mederos, Agricultural Sciences, and Health Sciences campuses. During this period, 28 field sessions were carried out with the participation of 143 volunteers from the university community. The documentation, systematization, and analysis process received technical support from specialists and students at the Ornithology Laboratory of the School of Biological Sciences.

As a result, 3,004 wildlife records were obtained, corresponding to 138 species of birds and mammals. These data confirm that university campuses maintain high ecological significance and perform essential functions for biodiversity conservation in urbanized areas.

Biodiversity on university campuses



Campus	4
Field sessions	7
Volunteers-Participants	28
No. of individuals recorded	143
No. of wildlife species	3,004
Field sessions	138

The significance of these results lies in demonstrating that university campuses are not only spaces where quality higher education, research, and innovation are promoted, but also living environments that contribute to the city’s environmental resilience.

The information generated also serves as a technical resource to guide ecological restoration efforts, green infrastructure design, and the sustainable management of university green spaces, consolidating the UANL as a national and international leader in urban sustainability and nature conservation.





WATER QUALITY MONITORING AND DETERMINATION OF BIOLOGICAL CONTAMINANTS IN AQUATIC ENVIRONMENTS

Universidad Autónoma de Nuevo León (UANL), through the Project Development Department of the Secretariat of Sustainability, in collaboration with the School of Veterinary Medicine and Zootechnology, has been operating since 2022 the Program for Water Quality Monitoring and Determination of Biological Contaminants in Aquatic Environments located in the vicinity of university campuses and facilities in the Monterrey Metropolitan Area (AMM, for its acronym in Spanish). This initiative responds to the need to assess, conserve, and restore urban and peri-urban water bodies, which are essential for environmental health, biodiversity, and social well-being.



The program's objective is to maintain a permanent monitoring system that provides scientifically grounded insights into the physicochemical and biological conditions of rivers, streams, lagoons, and wetlands linked to the university environment. To this end, parameters such as dissolved oxygen, pH, electrical conductivity, total dissolved solids, turbidity, and nutrients are analyzed, as well as biological contaminants of sanitary and ecological relevance, including coliform bacteria, protozoa, and potentially toxic cyanobacteria.

In 2025, monitoring sessions were conducted in **5** urban aquatic environments





The participation of the School of Veterinary Medicine and Zootechnology (FMVZ, for its acronym in Spanish) has been strategic, contributing specialized expertise in microbiology, parasitology, aquatic health, and laboratory analysis. This has strengthened the timely detection of pathogenic organisms and sources of contamination that pose risks to human, animal, and ecosystem health. Furthermore, the results obtained enable the formulation of measures for mitigation, control, and environmental restoration.

The program includes periodic sampling campaigns at sites selected based on their ecological representativeness, proximity to university facilities, and vulnerability to anthropogenic pressures, such as urban discharges, solid waste, stormwater runoff, and recreational activities. The samples are processed at the FMVZ Aquaculture Production Laboratory using microbiological, molecular, and culture techniques, ensuring reliable and comparable data over time.



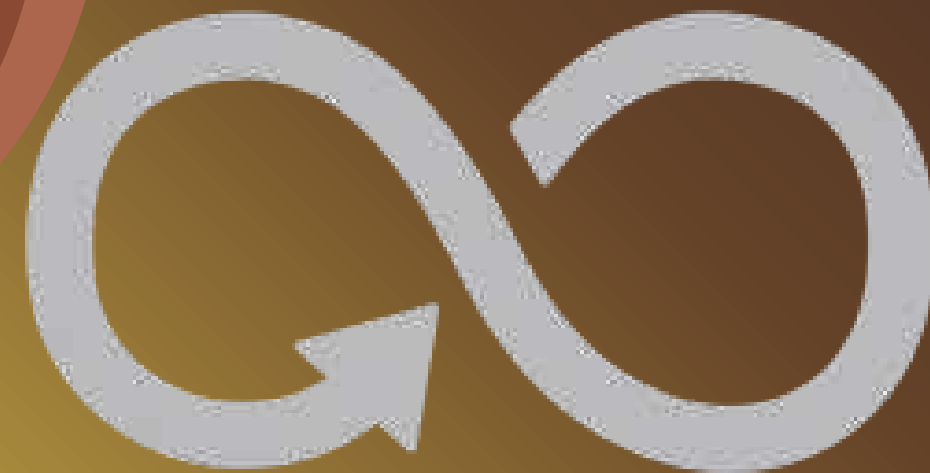
Since its inception, the program has enabled the development of a formal research project and the completion of two university theses: one at the undergraduate level and one at the graduate level. Similarly, it has contributed to the training of technical personnel specialized in environmental monitoring, microbiological analysis, and water resource management, strengthening institutional capacities in strategic areas for sustainability.

Among the program's main contributions is the development of public policy recommendations at the municipal and state levels aimed at improving the environmental conditions of aquatic ecosystems in the Monterrey Metropolitan Area, particularly regarding sanitation, ecological restoration, prevention of health risks, and sustainable water management.

The information generated serves as a key input for the UANL's institutional sustainability reports and for decision-making related to biodiversity conservation, green infrastructure, and urban resilience to climate change.



ANNUAL SUSTAINABILITY REPORT 2025





Waste

Institutional Program for Comprehensive Waste Management

The Universidad Autónoma de Nuevo León (UANL) carries out various academic, administrative, and operational activities across its campuses, which generate different types of waste. This waste is collected and managed through authorized service providers that hold the necessary state-level permits for Municipal Solid Waste (MSW) and Specially Managed Waste (SMW), as well as federal-level permits for Hazardous Waste (HW). Depending on its classification and physicochemical characteristics, the waste is recycled by incorporating it into production processes, sent to controlled final disposal sites, or subjected to thermal destruction treatments, such as incineration.

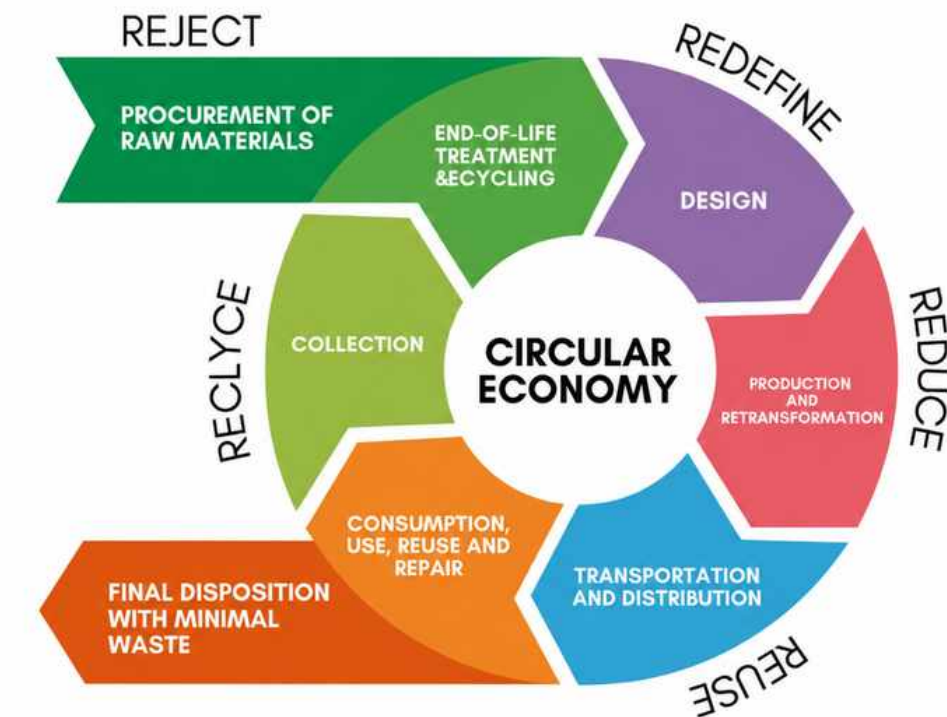
Currently, the UANL is in the process of transitioning to a comprehensive management model based on the principles of the circular economy, gradually replacing the traditional linear approach.

This model seeks to maximize the use of resources through strategies of reduction, reuse, recycling, and recovery, thereby contributing to the institution's environmental sustainability.

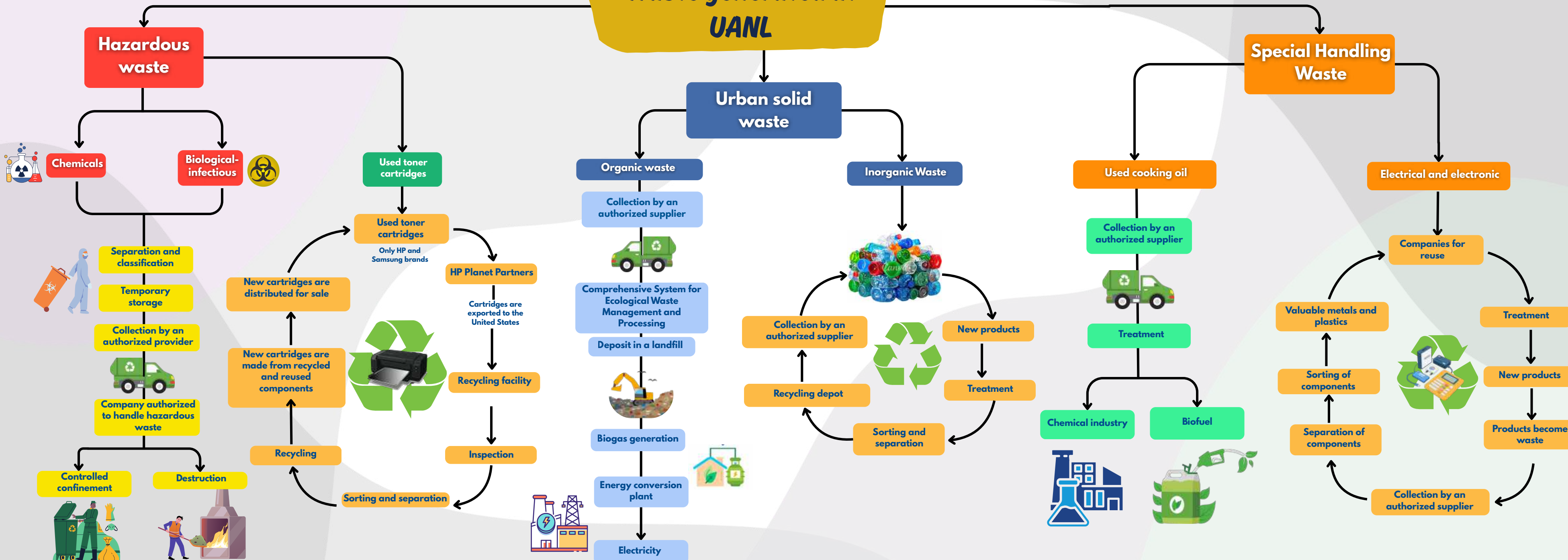


The diagram below maps waste management routes from generation at the various university campuses to their final destination. This diagram identifies waste management flows and applicable recovery options, demonstrating how waste, at the end of its useful life and depending on its characteristics, can be reintegrated into production chains for the manufacture of new products, in alignment with the principles of the circular economy.

Subsequently, the specific characteristics and management considerations corresponding to each type of waste are described.



Source: European Parliament Research Service





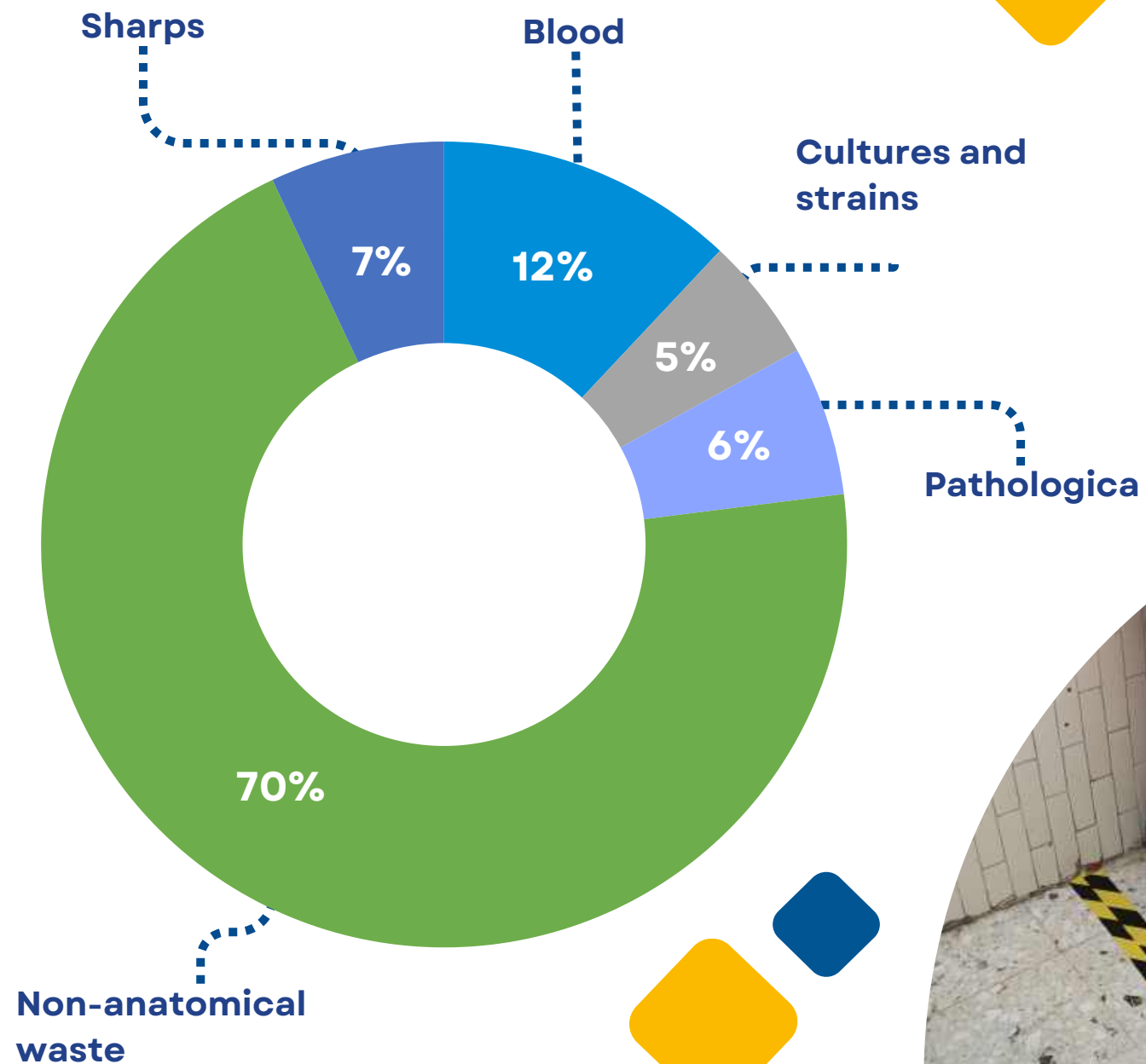
Hazardous Waste (HW)

All UANL departments have a procedures manual designed to standardize the management and final disposal of hazardous waste. This document serves as a regulatory and operational tool for the proper classification of waste according to incompatibility criteria, thereby facilitating its safe handling, temporary storage, and subsequent management. In 2025, a total of **241.32 tons (t) of hazardous waste** was generated, of which 70% consisted of Infectious Biological Hazardous Waste (RPBI, for its acronym in Spanish) and the remaining 30% of hazardous waste of chemical origin. The comprehensive management of this waste was carried out in accordance with the applicable regulatory framework, and the waste was managed in compliance with current legal requirements.

Biologically Infectious Hazardous Waste (RPBIs for its acronym in Spanish)

In accordance with the provisions of NOM-087-SEMARNAT-SSA1-2002, Biologically Infectious Hazardous Waste (RPBI, for its acronym in Spanish) is defined as materials generated during the provision of healthcare services that contain biologically infectious agents capable of causing harmful effects to human health and the environment. In 2025, a total of **169.75 tons** of this type of waste was generated. The corresponding characterization is presented in the following graph:

RPBI Characterization 2025



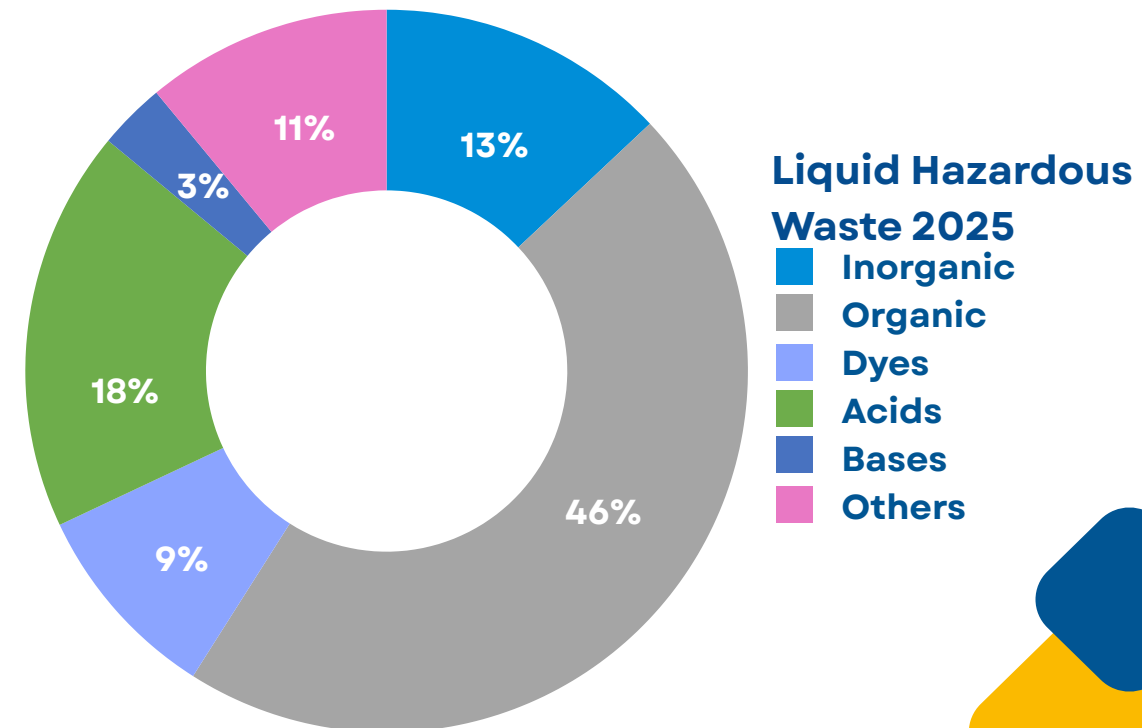
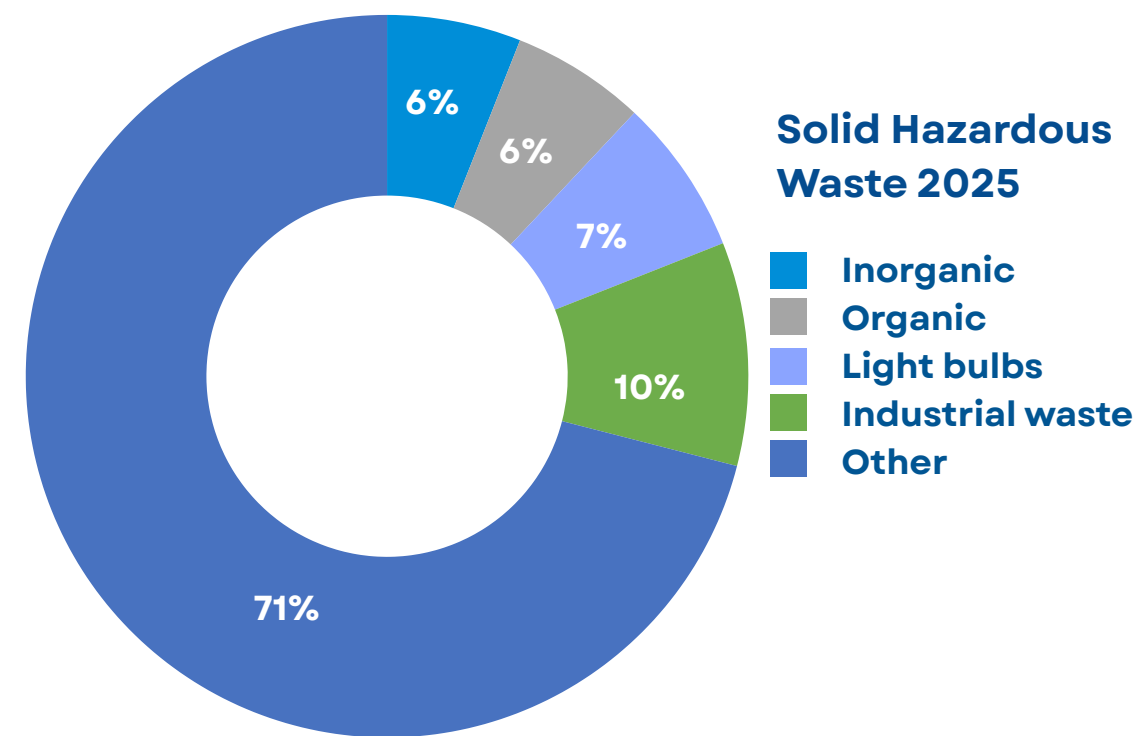
In 2025, a total of
169.75 t
tons of hazardous waste was
generated, and 100% was
managed in accordance with the
current legal framework





Hazardous waste of chemical origin

During the same period, **71.57 tons of hazardous waste of chemical origin were generated**, of which **34.46 tons were solid waste** and **37.11 tons were liquid waste**.



In 2025,
71.57 t
tons of hazardous chemical waste were generated, of which 34.46 tons were solid waste and 37.11 tons were liquid waste





Expired medications

An example of hazardous chemical waste is medication that has reached its expiration date. To ensure proper management, the UANL operates 5 collection centers dedicated to collecting this type of waste, located at the University Pharmacy of the School of Chemical Sciences, the Technical Medical High School, UANL Medical Services (Gonzalitos Unit), the School of Nursing, and the School of Veterinary Medicine and Zootechnology. At these collection points, expired medications are deposited by both the university community and the general public. In 2025, a total of **554.90 kg** of expired medications was collected at the aforementioned collection centers.

Once collected, the hazardous waste is delivered to companies authorized by the competent authorities, which treat or dispose of it in accordance with current environmental regulations.



In 2025,

554.90 kg

of expired medications
were collected at the
UANL collection
centers

Empty cartridge and toner collection program

Since May 2021, the UANL has participated in the HP Planet Partners program, through which used HP and Samsung ink and toner cartridges are collected and sent to a specialized recycling plant located in the United States, which operates under management systems certified in accordance with ISO 14001 and ISO 9001 standards. At this facility, the cartridges undergo a multi-phase recycling process that transforms them into reusable raw materials for the manufacture of new plastic and metal products, including new cartridges. Residual materials that cannot be recycled are disposed of or treated in an environmentally responsible manner through energy recovery processes. In 2025, a total of **3.19 tons** of empty ink and toner cartridges were managed through this program.



In 2025,

3.19t

of toner cartridges were
managed





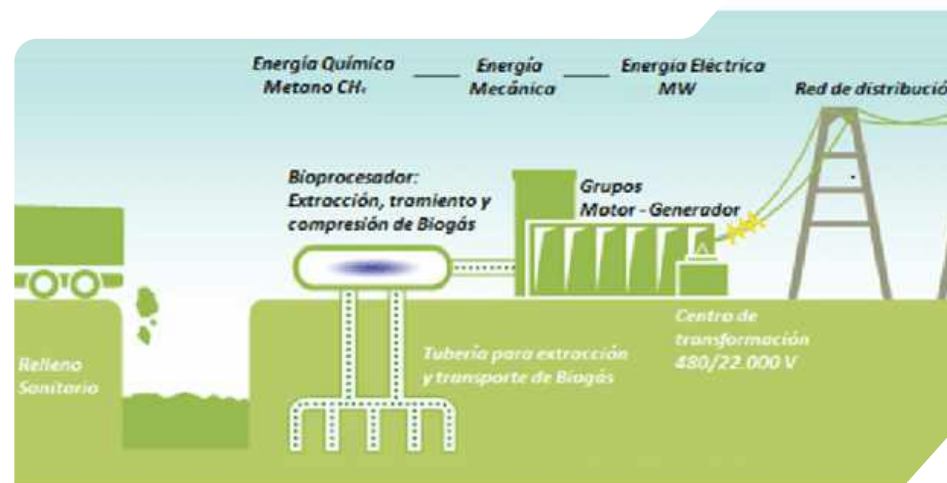
Municipal Solid Waste (MSW)

MSW generated at the various UANL facilities undergoes sorting processes to recover valuable materials, which are then sent for recycling.

Subsequently, the remaining waste is collected and transported by specialized vehicles to the Comprehensive System for Ecological Waste Management and Processing (SIMEPRODE, for its acronym in Spanish).

At these sites, waste is deposited in containment cells designed for compaction and volume reduction, which are covered with layers of clay and soil, ensuring stabilization under controlled anaerobic conditions. These facilities are equipped with infrastructure for capturing and conveying the methane (biogas) generated during the anaerobic decomposition of the organic fraction, as well as monitoring systems using wells to control leachate.

The recovered biogas is channeled to a bioenergy plant where it is converted into electricity. This energy is used to power the public lighting grid in seven municipalities of the Monterrey metropolitan area, various state government agencies, Fundidora Park, as well as to supply energy to the Metrorrey public transit system. These actions contribute to the mitigation of greenhouse gas emissions at the national level.



In 2025, a total of **3,621.52 tons of MSW** was generated at the UANL, of which 32% was organic waste and the remaining 68% was inorganic.



In 2025, a total of
3,621.52 t
of Municipal Solid Waste was
generated

This amounts to
1,158.88 t of organic waste and
2,462.64 t of organic waste and
100% of them were treated at
authorized final disposal sites



Organic MSW

The organic waste generated at the various UANL campuses consists mainly of food scraps and waste from gardening activities. In 2025, a total of **1,158.88 tons** of this type of waste was generated, all of which was treated at the final disposal site.

This management scheme ensures that 100% of the organic waste generated by the UANL receives environmentally appropriate treatment, in compliance with the principles of integrated waste management and environmental protection established in current environmental regulations.





Waste Separation and Recycling Program (PROSER, for its acronym in Spanish)

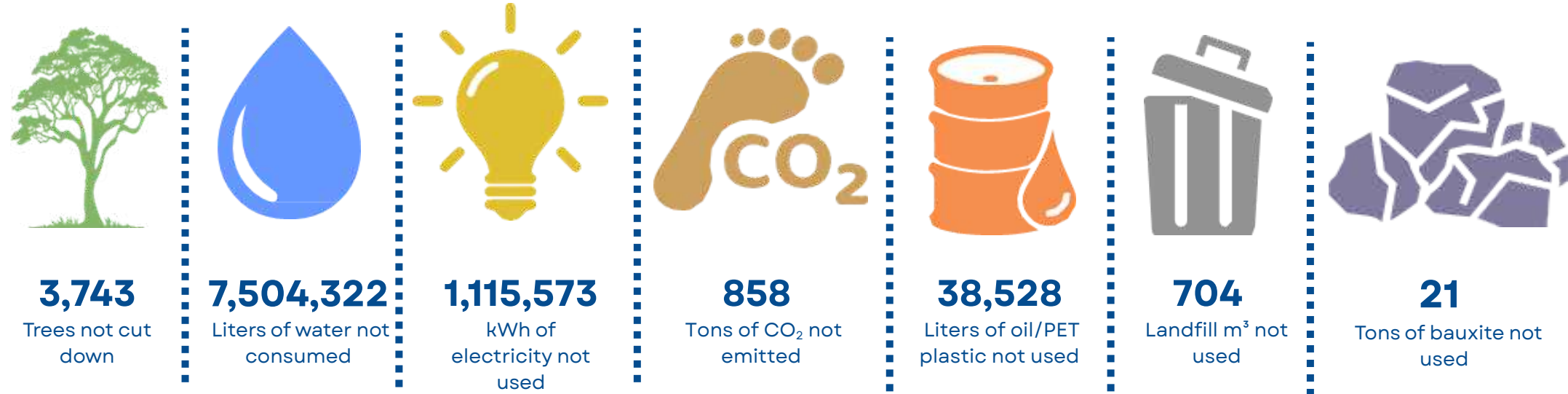
In February 2013, the UANL implemented the Waste Separation and Recycling Program (PROSER), which currently operates systematically across **84 university units**, comprising 55 academic units and 29 central units. This program involves the separation of recyclable materials—primarily cardboard, paper, aluminum, and PET—at the source of generation, using containers specifically designed for this purpose. Once separated, the recyclable waste is collected by specialized local companies and subsequently reincorporated as raw material in various production processes for the manufacture of new products, such as recycled cardboard and paper, toys, labels, and furniture, among others. Under this scheme, recyclable MSW generated at the UANL is managed according to a circular economy model, in accordance with the principles established in Mexico’s General Law on the Circular Economy.

In 2025, the Waste Separation and Recycling Program (PROSER) operated in 84 facilities, collecting a total of **252.49** metric tons of recyclable material

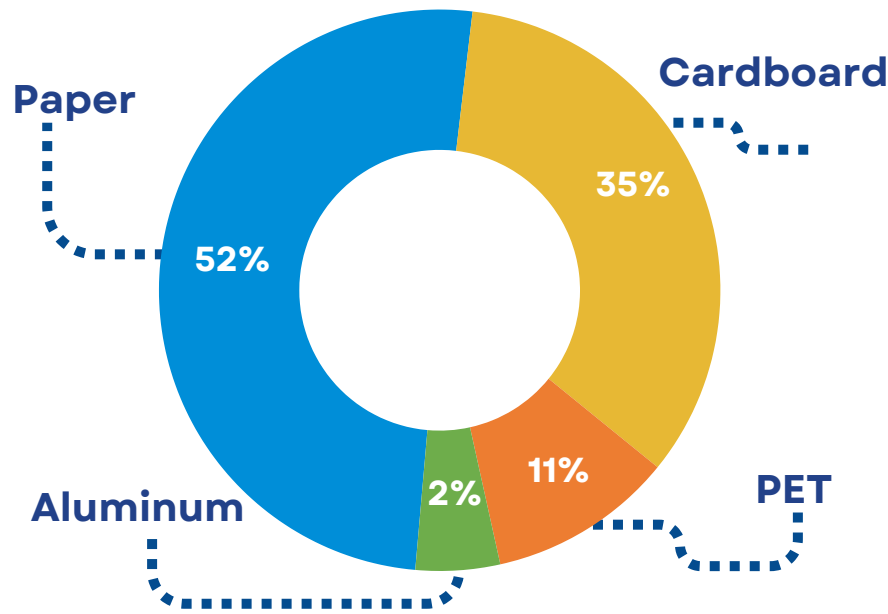


Between February 2013 and December 2025, a total of **2,506.41 t** of recyclable material was collected, yielding environmental benefits such as: energy savings of 11,175,283 kWh, 75,363,868 L of water not consumed, 36,458 trees not cut down, 8,541 t of CO₂ not emitted, 431,856 L of oil not used, 7,111 m³ of landfill space not used, and 233 t of bauxite not used.

In 2025, **252.49 t** of recyclable material were collected, resulting in significant environmental benefits, including energy savings of 1,115,573 kWh and 7,504,322 L of water, among others, as shown in the following figure:



Recyclable Material 2025





Program Overview

With the goal of expanding the scope of initiatives aimed at promoting a culture of recycling and raising awareness among the university community about the importance of preventing environmental pollution resulting from the improper management of plastic waste, the UANL, through the UANL Foundation A.C., is collaborating with the companies Arca Continental and PetStar on the “Con todo por favor” program, which began in May 2024.

As part of this initiative, 19 special containers were installed at strategic locations across the university campuses for the collection of empty PET plastic bottles, including caps and labels. The collected material is then transported to the food-grade PET recycling plant operated by PetStar, where it is processed to manufacture new bottles, thereby promoting the circular use of the material. In 2025, a total of **2,226 kg** of PET was collected through this program.





2nd UANL Recycling Day

On June 5 and 6, 2025, the **2nd UANL Recycling Day** was held, organized by the Sustainability Department through the Environmental Management and Operational Security Office, and hosted by the UANL Research Center for Sustainable Development (CIDESU, for its acronym in Spanish). The event was aimed at both the university community and the general public.

Under the slogan “Measuring the Impact of Our Actions,” the event aimed to promote proper waste disposal and environmental protection, as well as encourage recycling by collecting recyclable materials, including PET, aluminum, paper, and cardboard, among others.

The event was organized and managed with the support of the Comprehensive System for Ecological Waste Management and Processing (SIMEPRODE, for its acronym in Spanish), as well as the participation of more than 60 people, including students and faculty from various university departments, student associations, volunteers, and participating companies.





Special Waste Management (SWM)

In the context of the current global digital age, there has been an increase in the generation of waste electrical and electronic equipment (WEEE), which can pose risks to the environment and human health when not properly managed.

In 2025, the UANL collected a total of **15.81 tons** of WEEE through the electronic recycling campaign organized by the Sustainability Department in October, as well as during the Recycling Day held in June of the same year, promoting its environmentally sound management and disposal.

In 2025,
15.81 t
of Waste Electrical and
Electronic Equipment were
collected



369,741 kWh
of unused
electricity



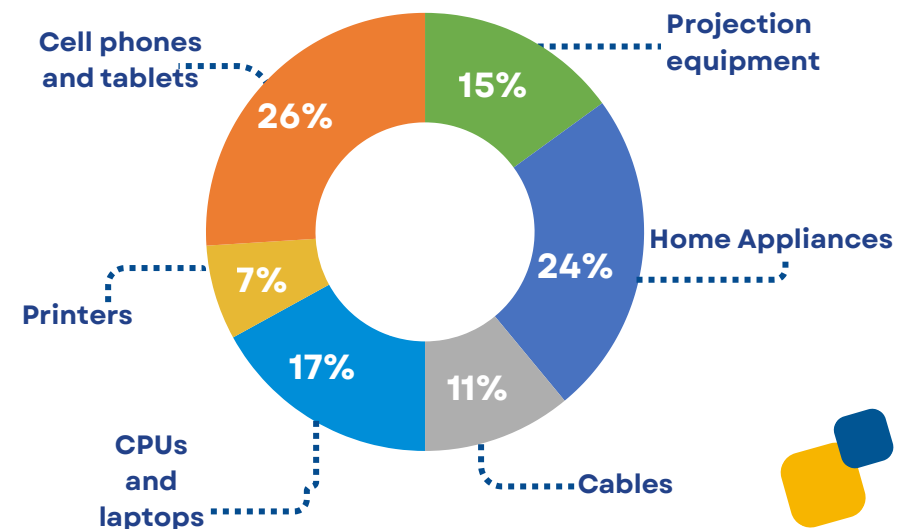
58 toneladas
of CO₂ emitted



Once collected by a service provider authorized by the state government, the waste is transported to specialized collection centers, where it is sorted by category and its various material components are separated. Then, each fraction is channeled to specific recovery processes. For example, plastic materials are sent to local recyclers to be used as raw material in the manufacture of new products, such as toys and pallets. Meanwhile, metals like copper and aluminum are sent to domestic smelters for the production of electrical wiring, copper piping, and aluminum sheets or rolls, among other products.

Finally, electronic components such as circuit boards and power supplies are sent to specialized companies abroad, where precious metals and other valuable materials are recovered and reintroduced into production cycles for the manufacture of various goods, including mobile devices, automotive components, fans, and everyday items.

WEEE Characterization 2025





Grease and oil waste from coffee shops

One of the main sources of surface and groundwater contamination is the improper disposal of waste generated during food preparation, particularly vegetable and/or animal-based oils and fats. In response to this situation, the UANL promotes a program for the collection and management of residual vegetable oil generated in the cafeterias operating on its campuses, in coordination with a specialized company that holds the necessary authorizations for its management.

In 2025, **27.08 tons of vegetable oil** were collected and sent for recycling to produce environmentally friendly chemical products and biofuels, contributing to the sustainable use of this waste.



The UANL has currently achieved **63%** progress in the installation of grease and oil traps in the cafeterias located on its university campuses, as part of efforts to comply with applicable environmental and health regulations.

These installations are being implemented in accordance with the provisions of **NOM-002-ECOL-1996** “Maximum Permissible Limits of Contaminants in Wastewater Discharges to Urban or Municipal Sewer Systems” as well as **NOM-251-SSA1-2009** “Hygiene Practices for the Processing of Food, Beverages, or Dietary Supplements.”

In 2025,
27.08 t
of vegetable oil were collected from
cafeterias operating on various
university campuses



Technical guidelines for waste handling and management

The UANL Sustainability Department, through the Office of Environmental Management and Operational Safety, formulated technical guidelines for:

- Responsible consumption
- Handling and management of hazardous waste.
- Handling and management of municipal solid waste with recyclable and special-handling characteristics.



These guidelines provide information for university departments on the proper handling of waste generated on the various university campuses. Additionally, the sustainability guide for workshops and laboratories is available

- Sustainability guide for workshops and laboratories





◆ Responsible Consumption Program responsable

The Responsible Consumption Program at the Universidad Autónoma de Nuevo León (UANL) is an institutional strategy aimed at promoting sustainable consumption habits among members of the university community through actions focused on reducing resource consumption, minimizing waste, and efficiently utilizing materials and energy. Through this program, the UANL promotes practices that help reduce the institution's ecological footprint and strengthen social and environmental responsibility across various university spaces.

Key initiatives include reducing the use of single-use plastics, cutting back on paper and natural raw materials, promoting waste separation and responsible waste management, and encouraging reusable alternatives with lower environmental impact. These measures help reduce the generation of highly polluting waste and foster a culture of rational resource use.

In addition, the UANL has improved access to potable water by installing and operating public drinking fountains supplied by water treatment plants on various university campuses. At Ciudad Universitaria, this program has significantly reduced the consumption of bottled water in PET containers, thereby decreasing the generation of plastic waste and promoting more sustainable consumption habits among students, faculty, and administrative staff.



In 2025, the 64 public drinking fountains installed at Ciudad Universitaria recorded a consumption of 3,234,678 of potable water, preventing the use of 6,469,256, 500-milliliter plastic bottles. This initiative yielded significant economic benefits for the university community, generating estimated savings of approximately \$5,632,056.00 million dollars annually for users.



Economic Benefits of the Drinking Water Fountain Program

Year	Average no. of L of water consumed annually	No. of bottles (500 ml) not consumed annually	Annual savings for the users of the drinking fountains by not buying bottles (500 ml).
2025	3,234,678	6,469,356	\$ 5,632,056.00 (USD)

*Considering the price of the 500 ml bottle at \$ 0.87 (USD)

Environmental benefits of the "Drinking Water Fountains" program

Year	Water consumed (L) in drinking fountains at CU	Equivalence in bottles (500 ml)	Ton PET not used	Energy not consumed (kWh)	Water not consumed (L) in the production of PET	CO ₂ not emitted (ton)	Unused landfill (m³)	Oil saved (L)
2025	3,234,678	6,469,356	78	391,111	3,105,291	132	421	110,471

Likewise, from an environmental standpoint, the program prevented the generation of 78 tons of PET waste and reduced the demand for space allocated for final disposal in landfills, in addition to decreasing emissions associated with the production, transportation, and sale of bottled water. Through this, the UANL strengthens its efforts to mitigate climate change and conserve natural resources, promoting a more responsible and conscious consumption model.

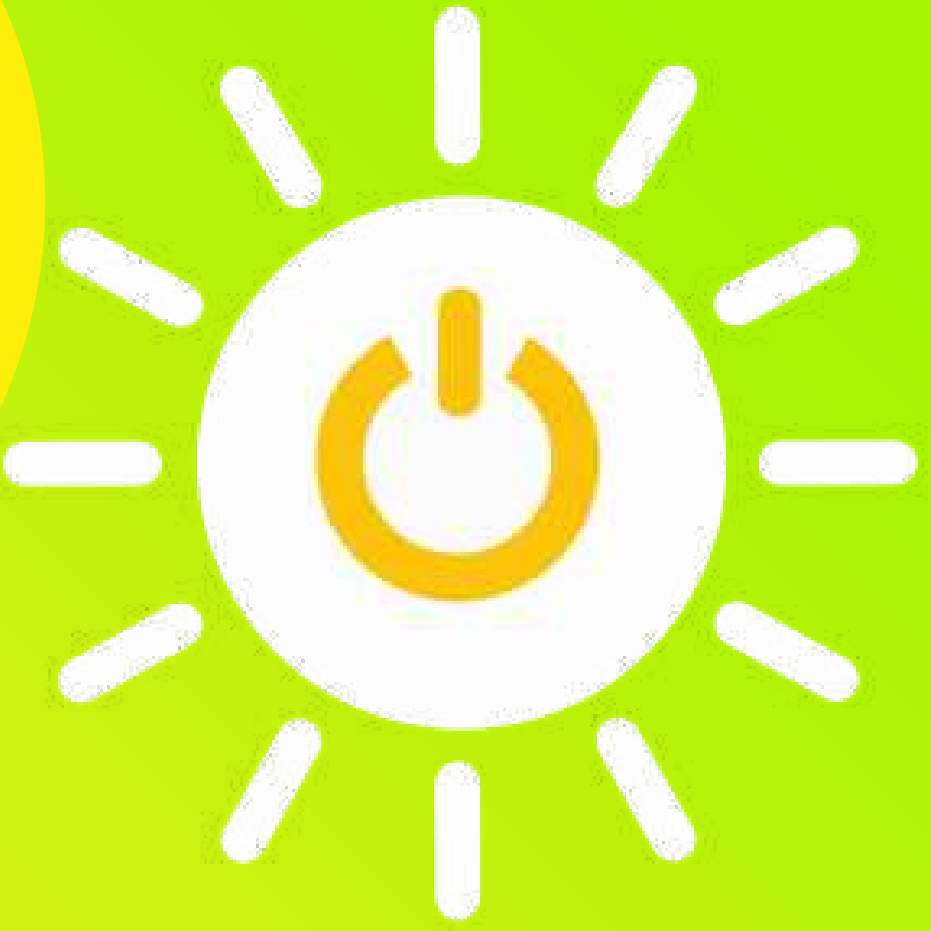
The Responsible Consumption Program also contributes to strengthening ethical education and environmental awareness within the university community by encouraging reflection on the impact of consumption decisions on the environment and society.



In 2025, the UANL prevented the consumption of just over **6 million** 500-ml bottles of water, resulting in savings of **5 million** dollars for users

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Energy Efficiency

Since 2010, the Universidad Autónoma de Nuevo León (UANL) has operated the Energy Efficiency Program, with the goal of reducing energy consumption on campus through the implementation of technical and cultural initiatives aimed at energy savings, the incorporation of renewable energy sources, and the use of high-efficiency technologies.

The program addresses the need to transition toward sustainable consumption models aligned with the Sustainable Development Goals, particularly SDG 7 (Affordable and Clean Energy) and SDG 13 (Climate Action). It also contributes to the fulfillment of the institutional goals established in the UANL's Vision 2040, aimed at consolidating an innovative, socially responsible, and environmentally sustainable university.

In recent years, the University has managed to stabilize the growth curve in energy consumption, despite increases in infrastructure, enrollment, and university services. In 2025, significant progress was made by achieving a real decrease in energy consumption, resulting from technological modernization, operational improvements, and greater awareness of responsible use among the university community. This achievement led to a reduction in greenhouse gas emissions and the institution's ecological footprint.

97,279,208 KWh
annual electricity consumption
of UANL in 2025





◆ Energy-Saving Strategies

One of the key components of the program is the reduction of energy consumption through operational efficiency measures and the responsible use of energy. These main actions include turning off electrical equipment at the end of the workday, unplugging unused devices, adjusting the operating schedules of HVAC and lighting systems, and optimizing electrical loads in buildings.

In addition, automated measurement and monitoring systems have been implemented to record and analyze consumption by building, department, or campus. This information makes it easier to identify usage patterns, detect inefficiencies, and implement corrective actions in a timely manner.

Likewise, ongoing awareness campaigns are conducted targeting students, faculty, and administrative staff, thereby strengthening an institutional culture of responsible consumption.





◆ Incorporation of Renewable Energy Sources

The second pillar of the program focuses on the progressive incorporation of renewable energy into the university's infrastructure. A key initiative is the installation of photovoltaic systems on building roofs, which generate 1,710,536 kWh annually.

These actions reduce dependence on fossil fuels, lower operating costs, and contribute to climate change mitigation. Additionally, the installed infrastructure serves as an educational resource for academic programs related to engineering, architecture, and environmental sciences.

Pilot projects are also being promoted to evaluate other alternatives, such as solar thermal energy, hybrid systems, and emerging technologies adapted to the conditions of each campus.



By 2025,
37.27 %
of the electricity consumed by the
UANL was generated by renewable
energy sources





◆ Equipment Modernization

The technological renewal of HVAC and lighting equipment is another strategic component. In HVAC, outdated equipment has been replaced with high-efficiency systems featuring variable-speed compressors, refrigerants with lower environmental impact, and automated temperature controls.

In lighting, the transition to LED fixtures has significantly reduced electricity demand, improved lighting quality, and lowered maintenance costs. These measures are complemented by motion sensors, timers, and smart controls that prevent unnecessary energy consumption.

Through the modernization of academic and administrative buildings, libraries, laboratories, auditoriums, and sports facilities, the university has significantly enhanced the energy performance of its infrastructure.



◆ Control Panel

The Energy Control Panel integrates data from smart meters and sensors installed at strategic locations across the University. This platform enables real-time monitoring of consumption, detection of anomalies, evaluation of the impact of implemented measures, and generation of comparative reports by period.

Its key benefits include improved decision-making, greater institutional transparency, reduced operating costs, and a stronger culture of energy awareness throughout the university community.

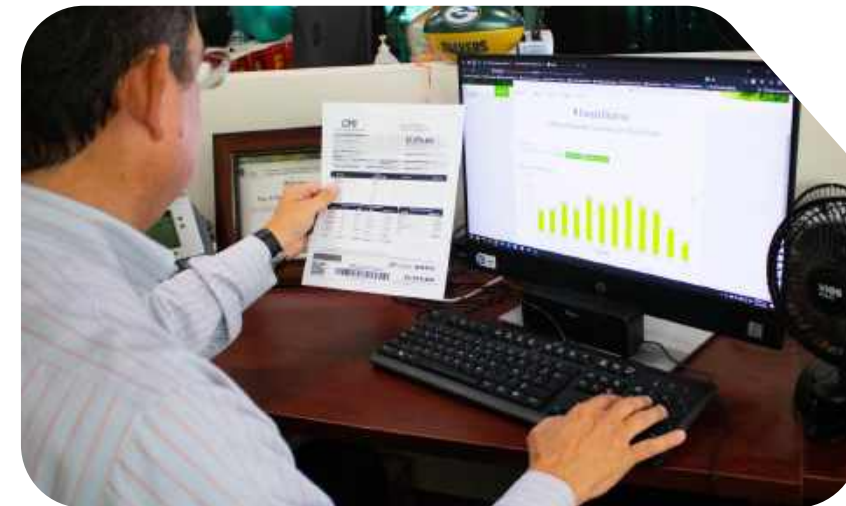




◆ Scope of the Program

The Energy Efficiency Program has a cross-cutting scope across the entire university structure. It is implemented on campuses, in high schools, faculties, research centers, and administrative offices. Additionally, it is integrated into institutional environmental management systems, ensuring monitoring, evaluation, and continuous improvement.

The use of key performance indicators allows for the precise measurement of results, the establishment of progressive goals, and the targeting of new strategic investments in energy efficiency.



◆ Program Benefits

The program's benefits span environmental, economic, and social dimensions. From an environmental standpoint, reduced electricity consumption and the increased use of clean energy sources contribute to lowering the institution's carbon footprint and greenhouse gas emissions.

Economically, energy efficiency measures generate operational savings that can be redirected toward educational infrastructure, scholarships, research initiatives, and the enhancement of university services.

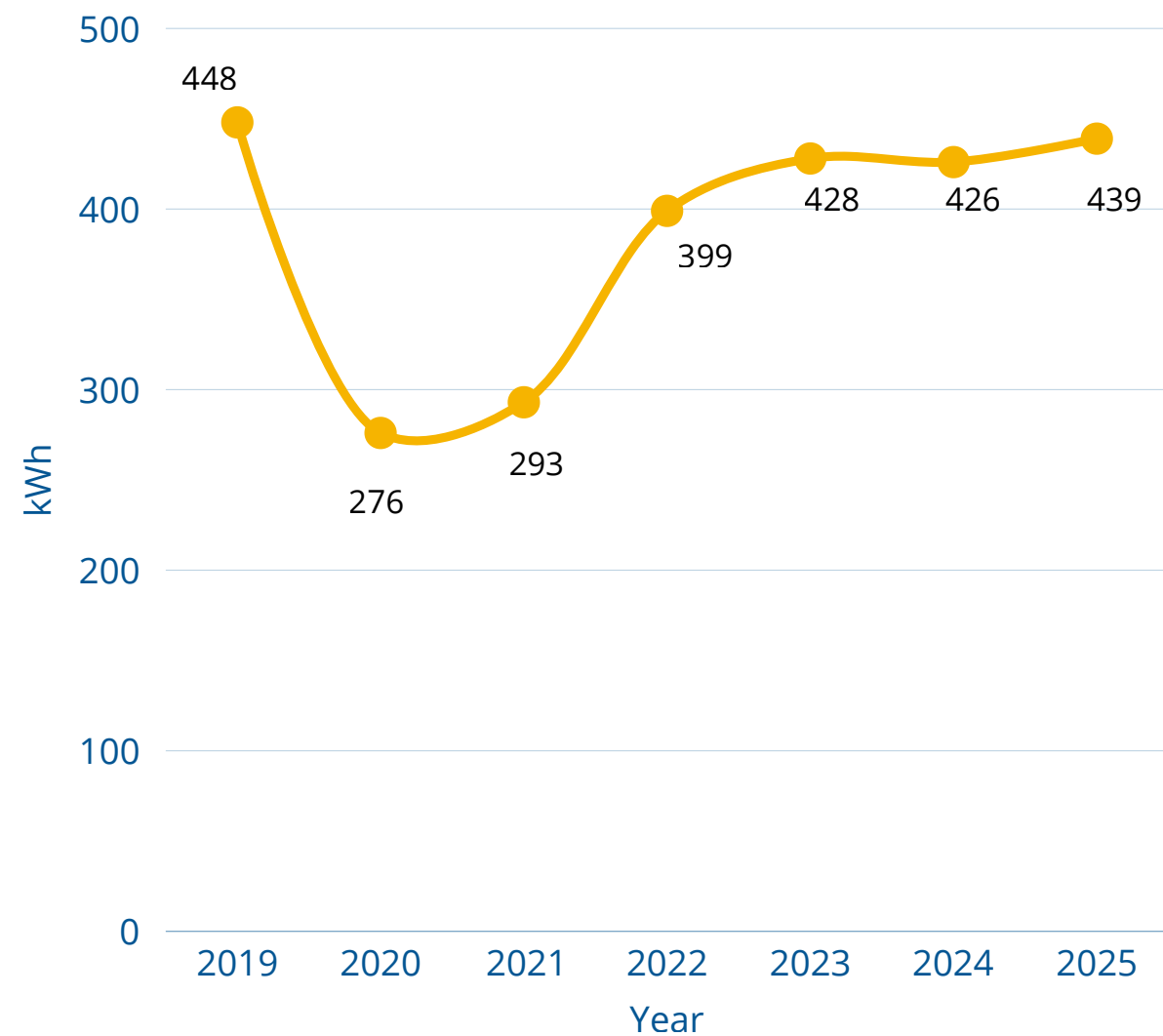
From an academic and social perspective, the program encourages the active participation of the university community in the transition toward a sustainable energy model while fostering the development of technical competencies and applied innovation.

Collectively, these efforts reinforce the position of the UANL as a national and international benchmark in sustainability and strengthen its leadership in advancing sustainable development.

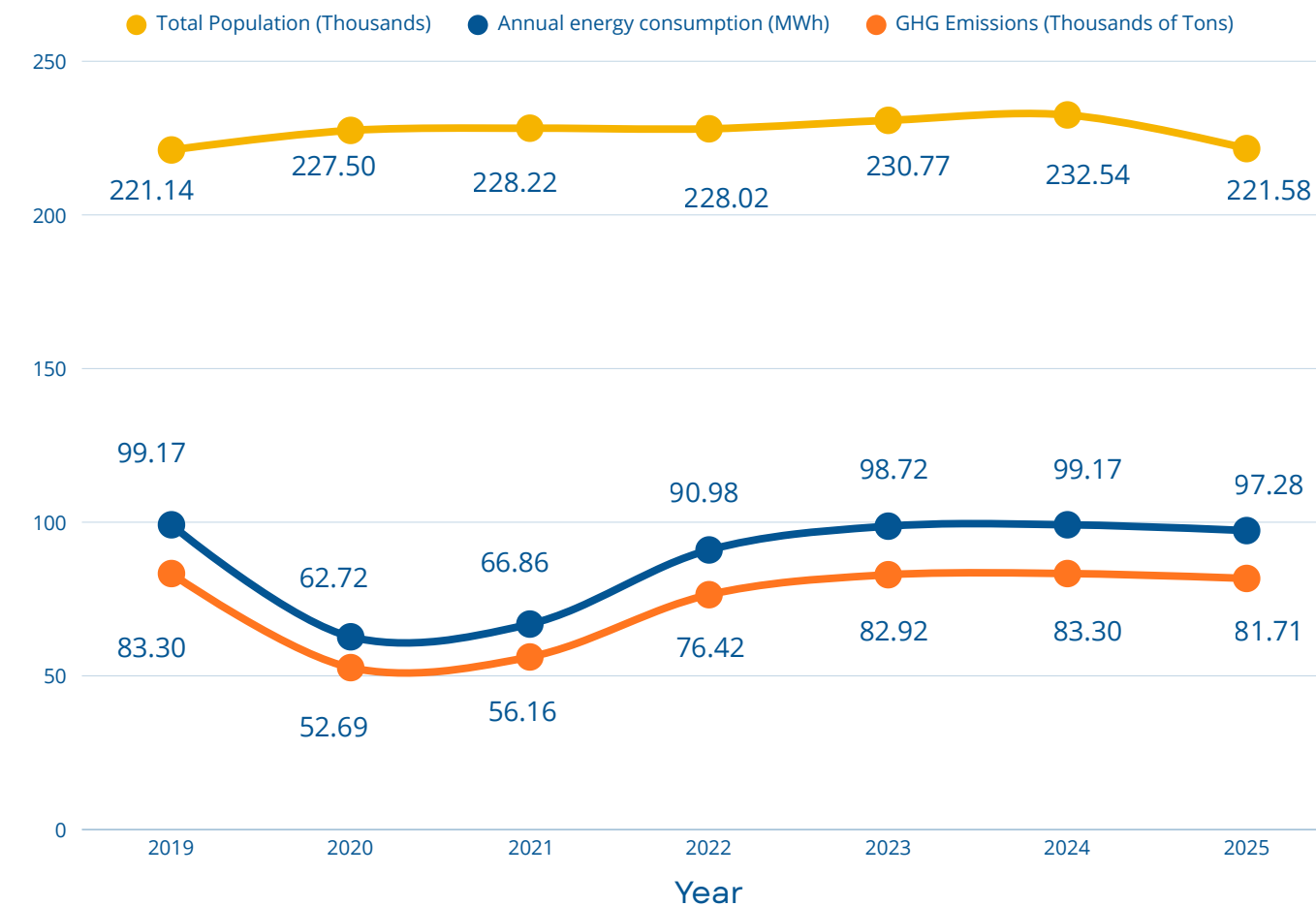




Per capita electricity consumption annual UANL



UANL Electricity Consumption 2019–2025

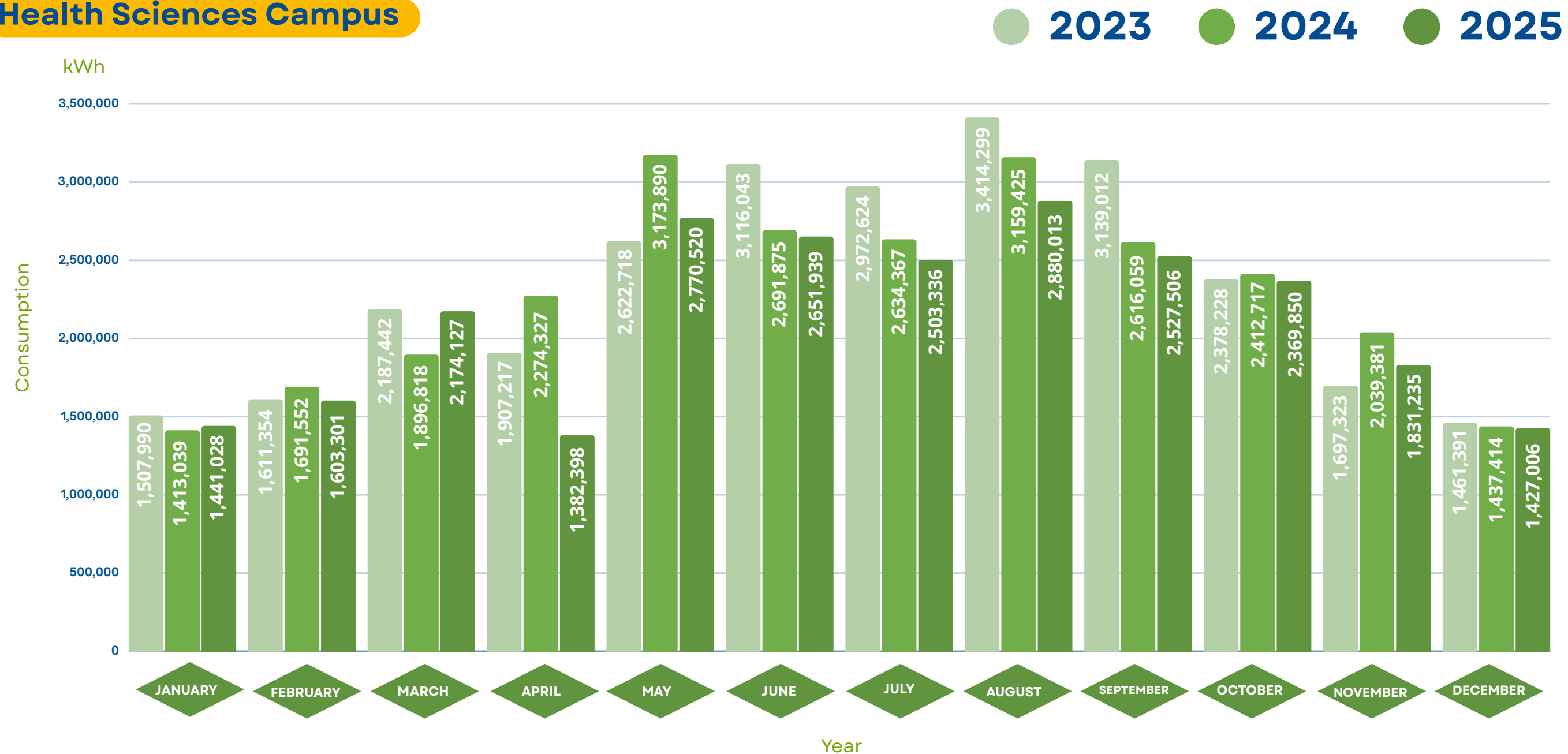


439 kWh
of electricity consumption per capita
UANL in 2025



Monthly electricity consumption

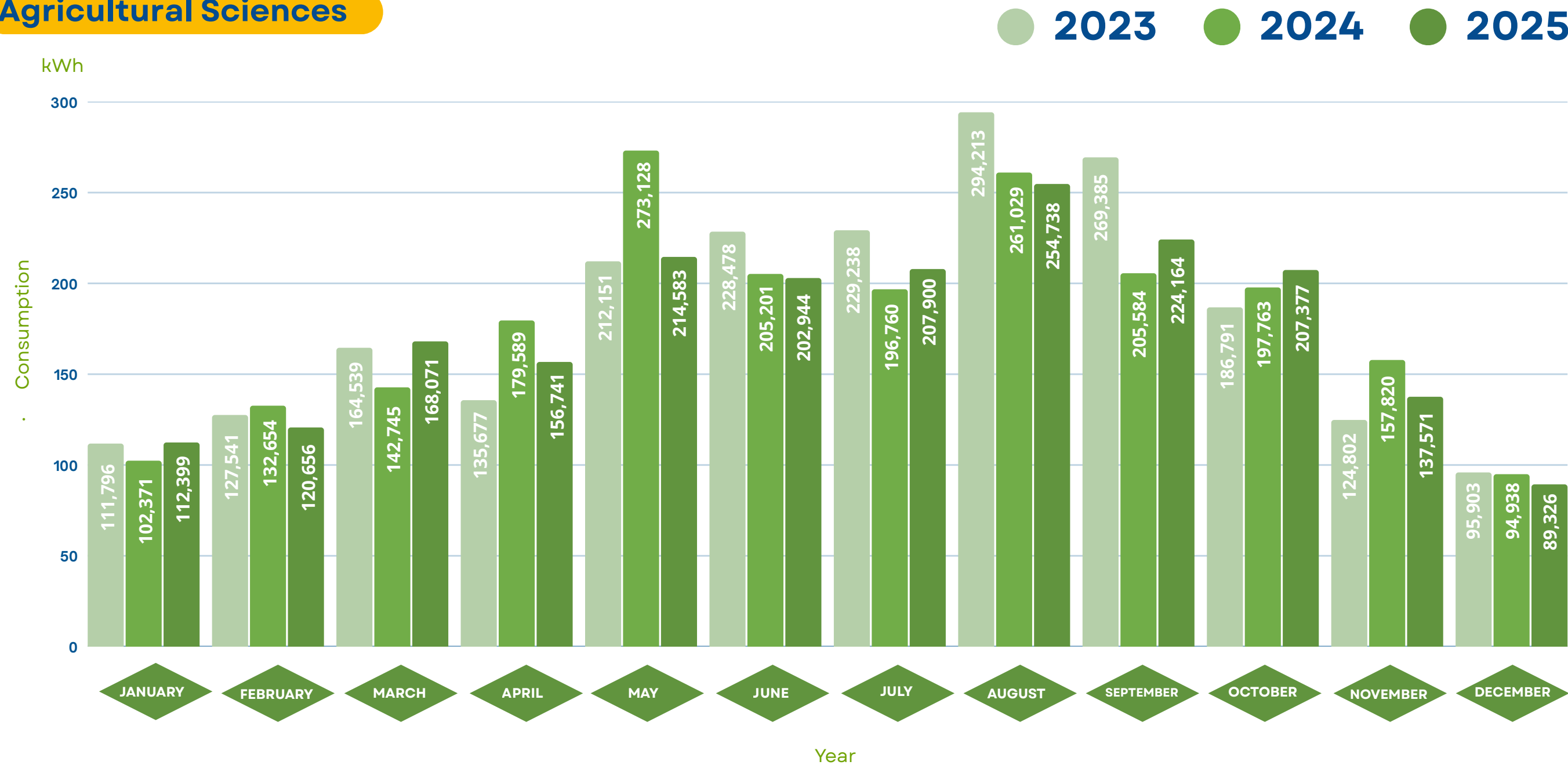
Health Sciences Campus





Monthly electricity consumption

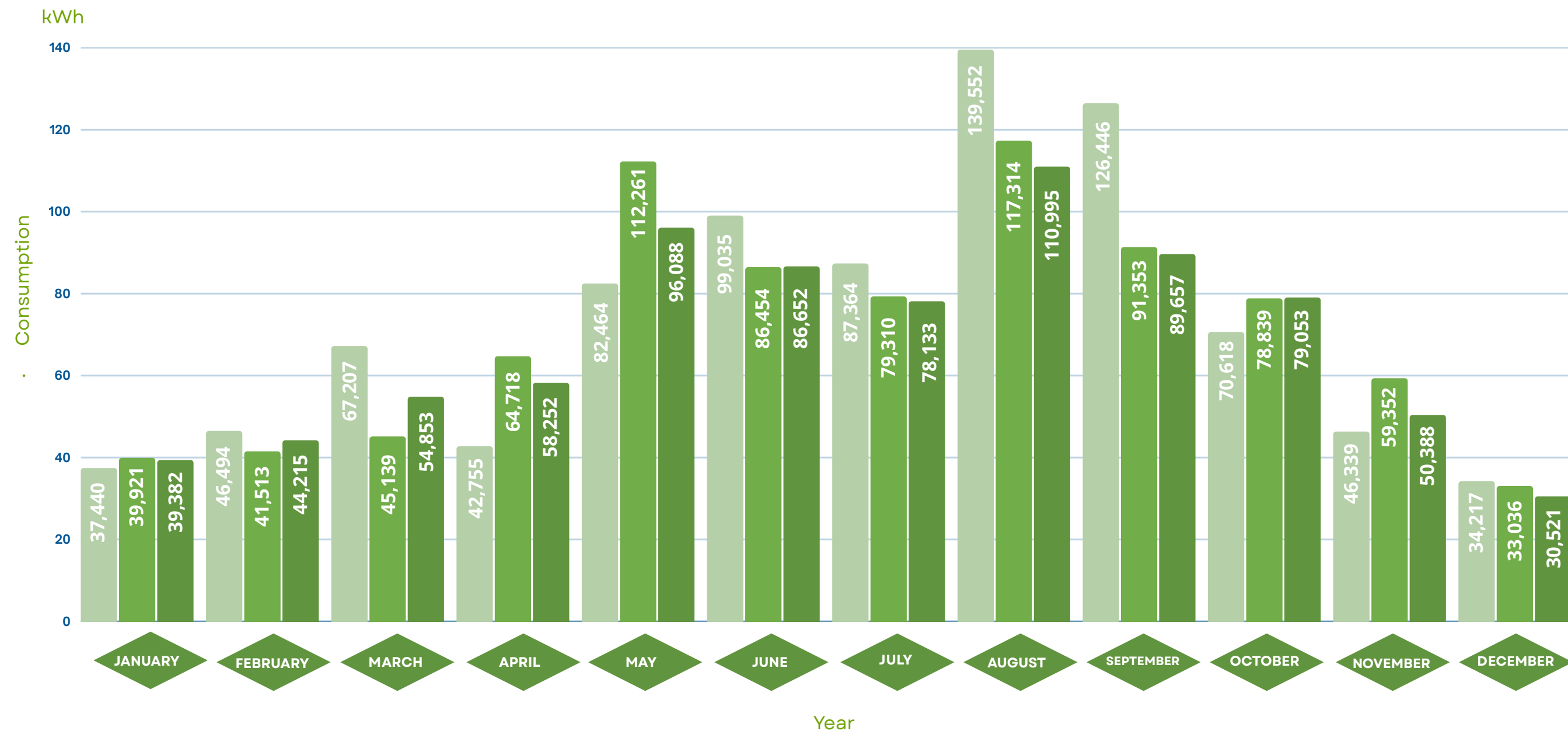
Agricultural Sciences





Monthly electricity consumption

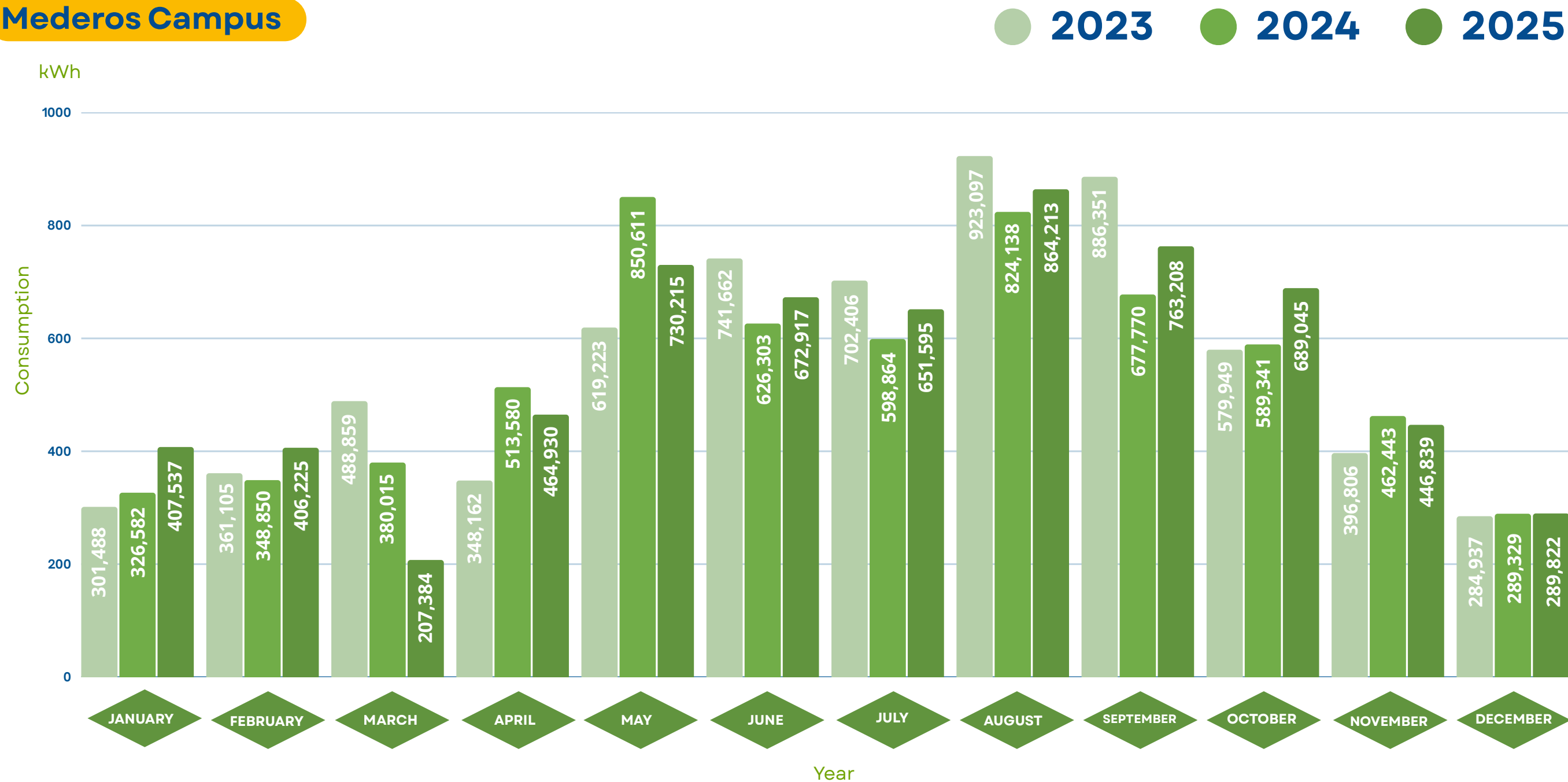
Linares Campus





Monthly electricity consumption Mederos Campus

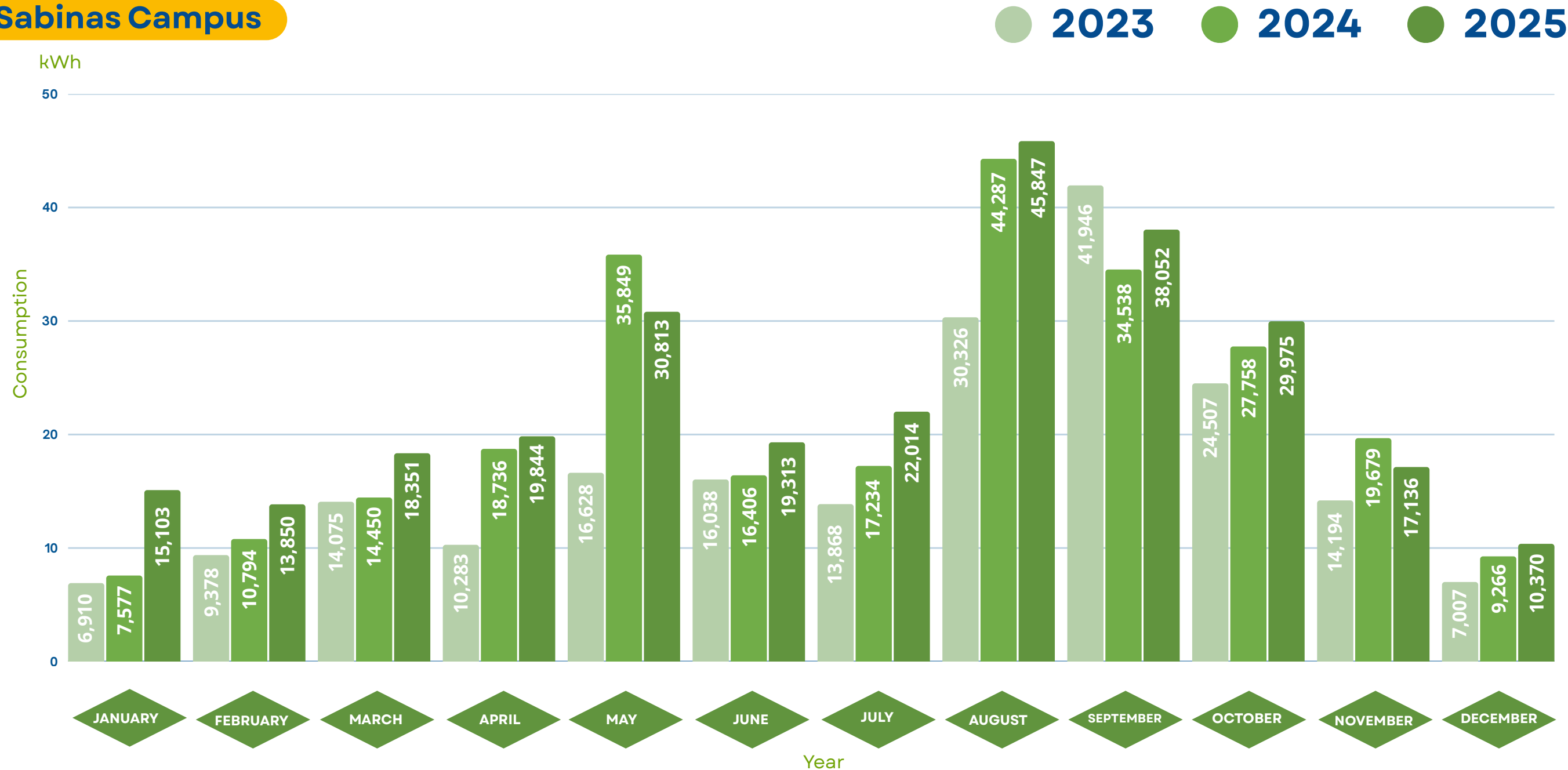
Mederos Campus





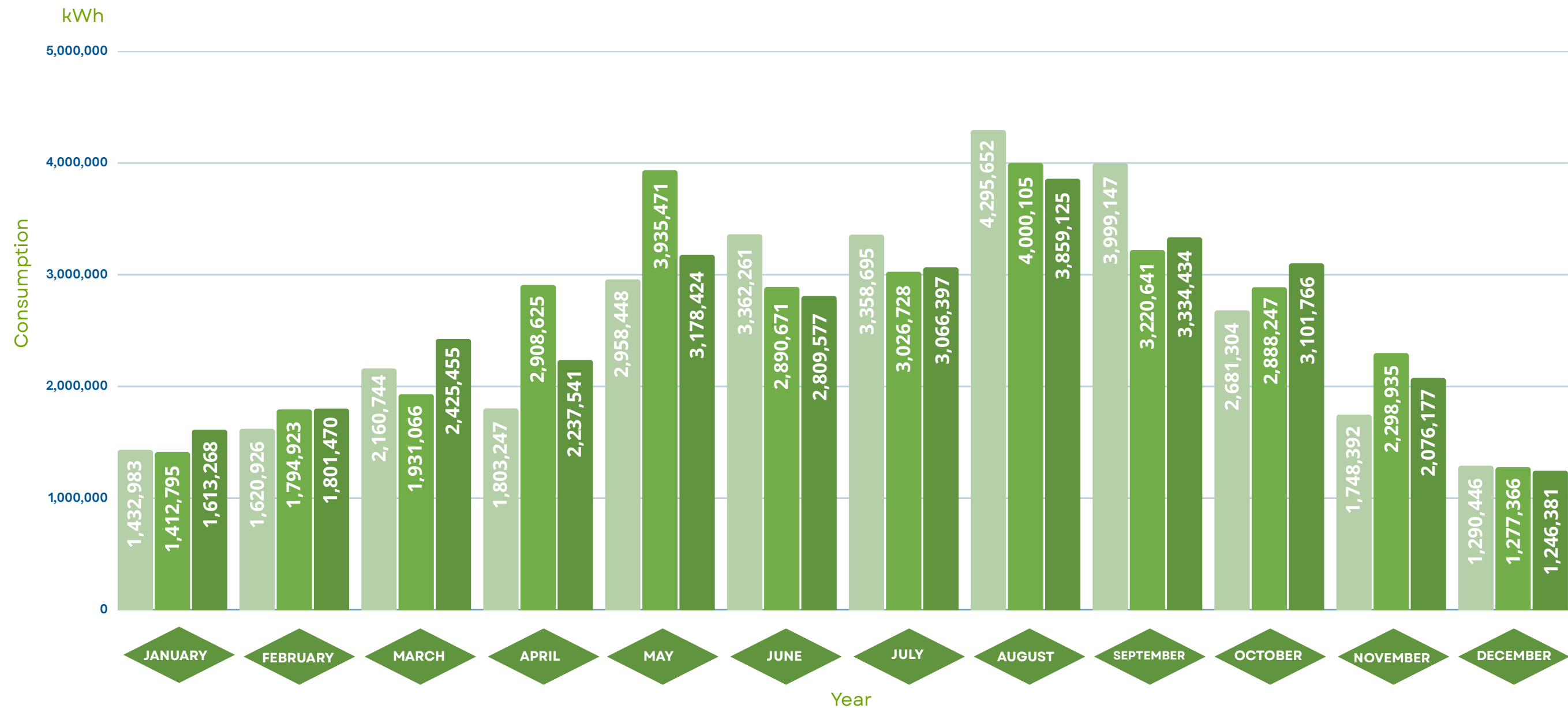
Monthly electricity consumption

Sabinas Campus



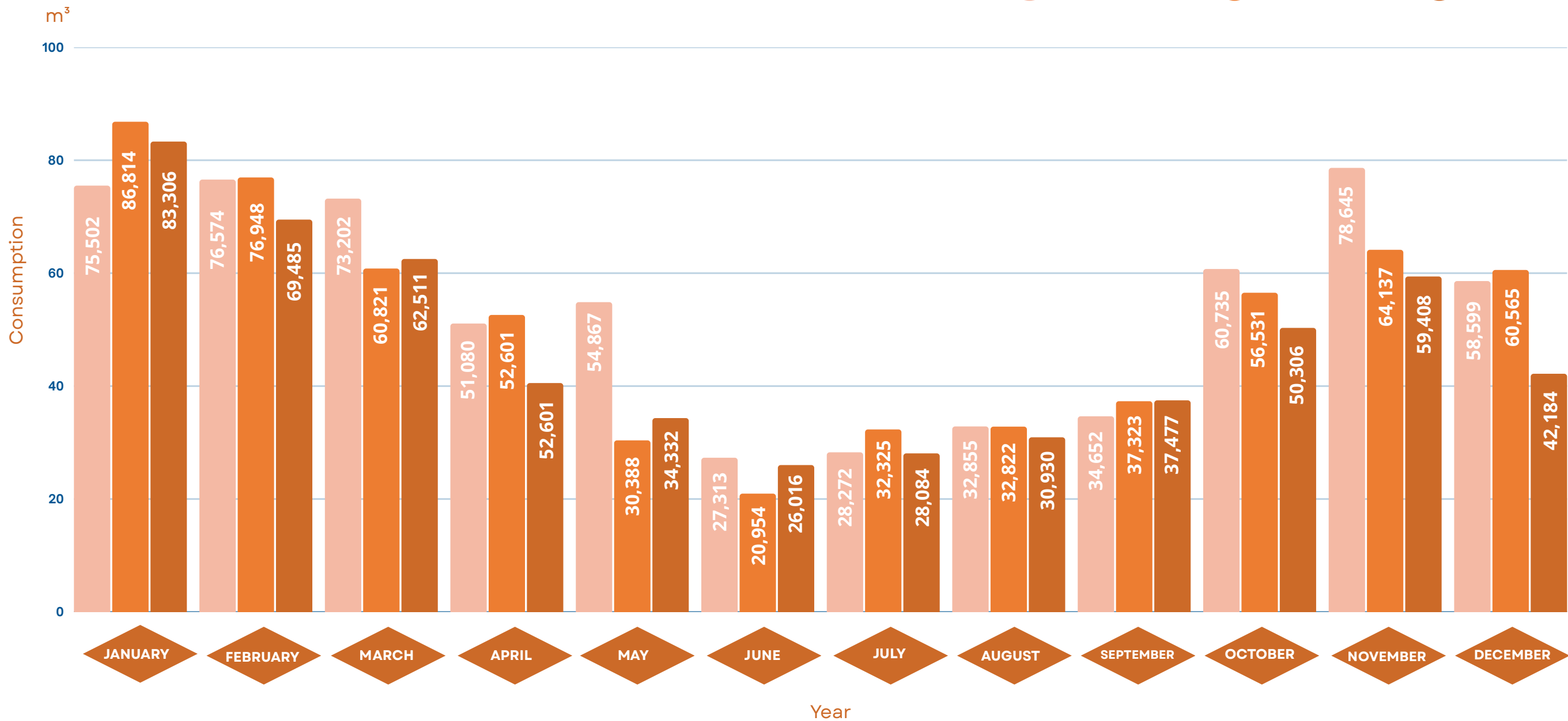


Monthly electricity consumption Ciudad Universitaria Campus



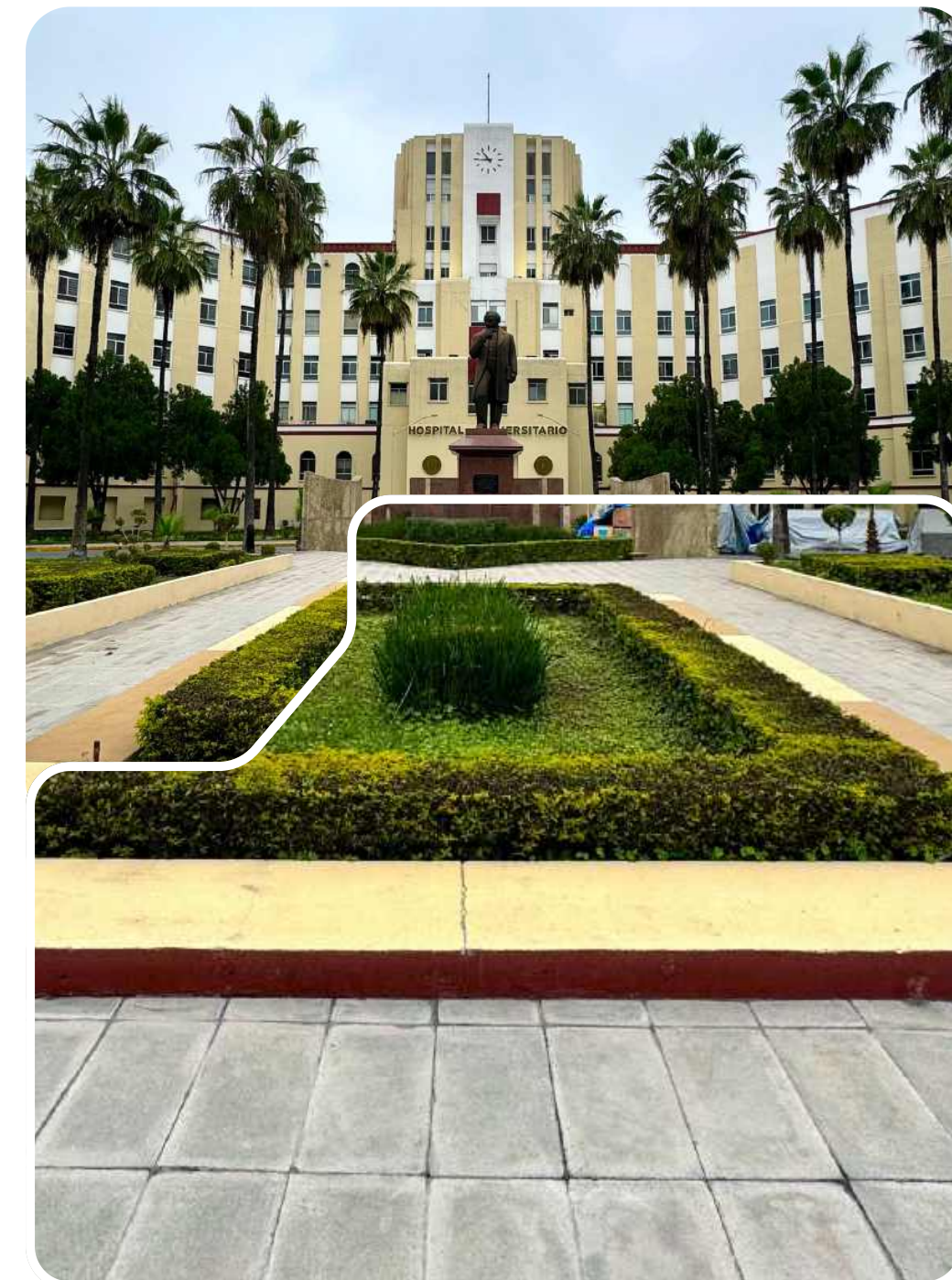
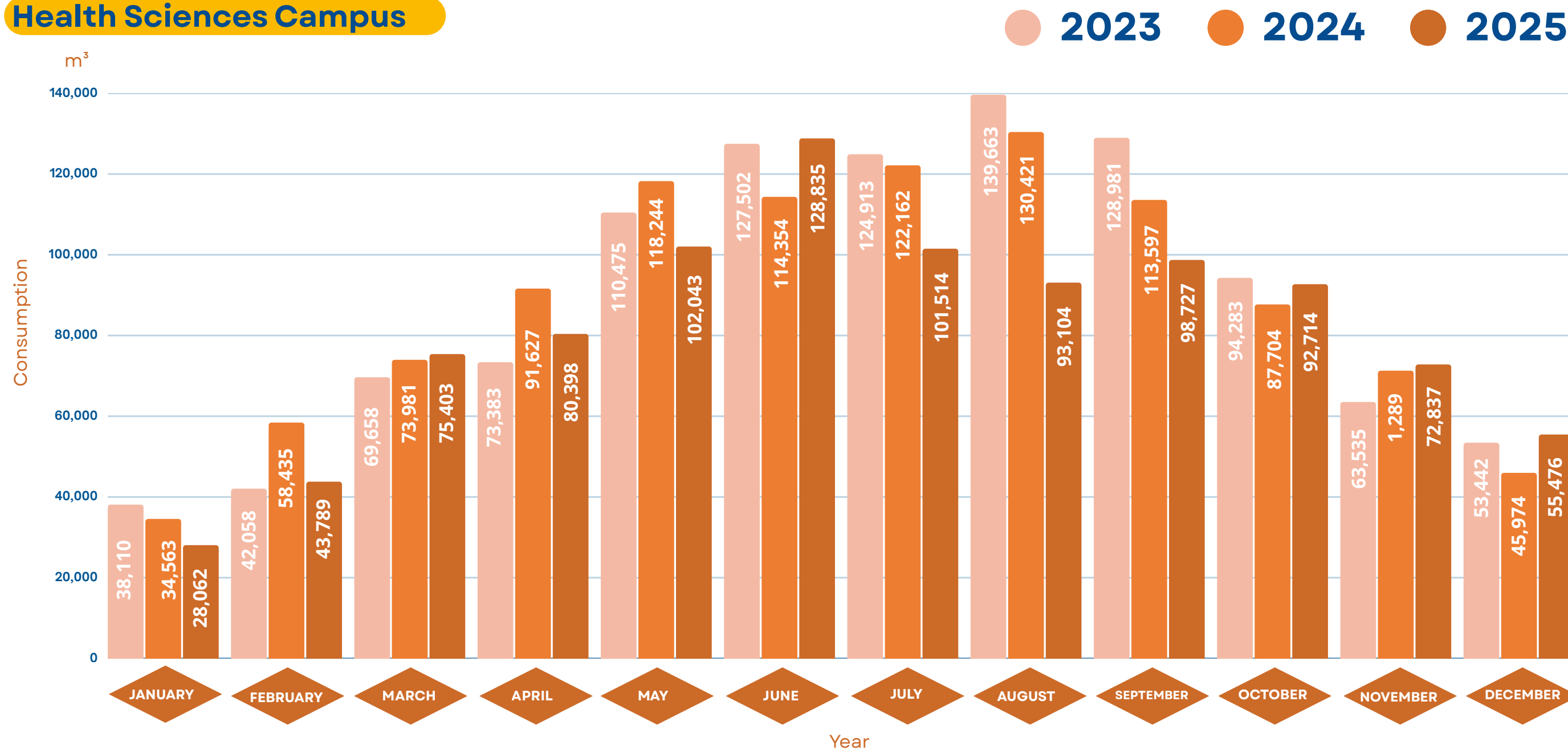


Monthly gas consumption Ciudad Universitaria Campus





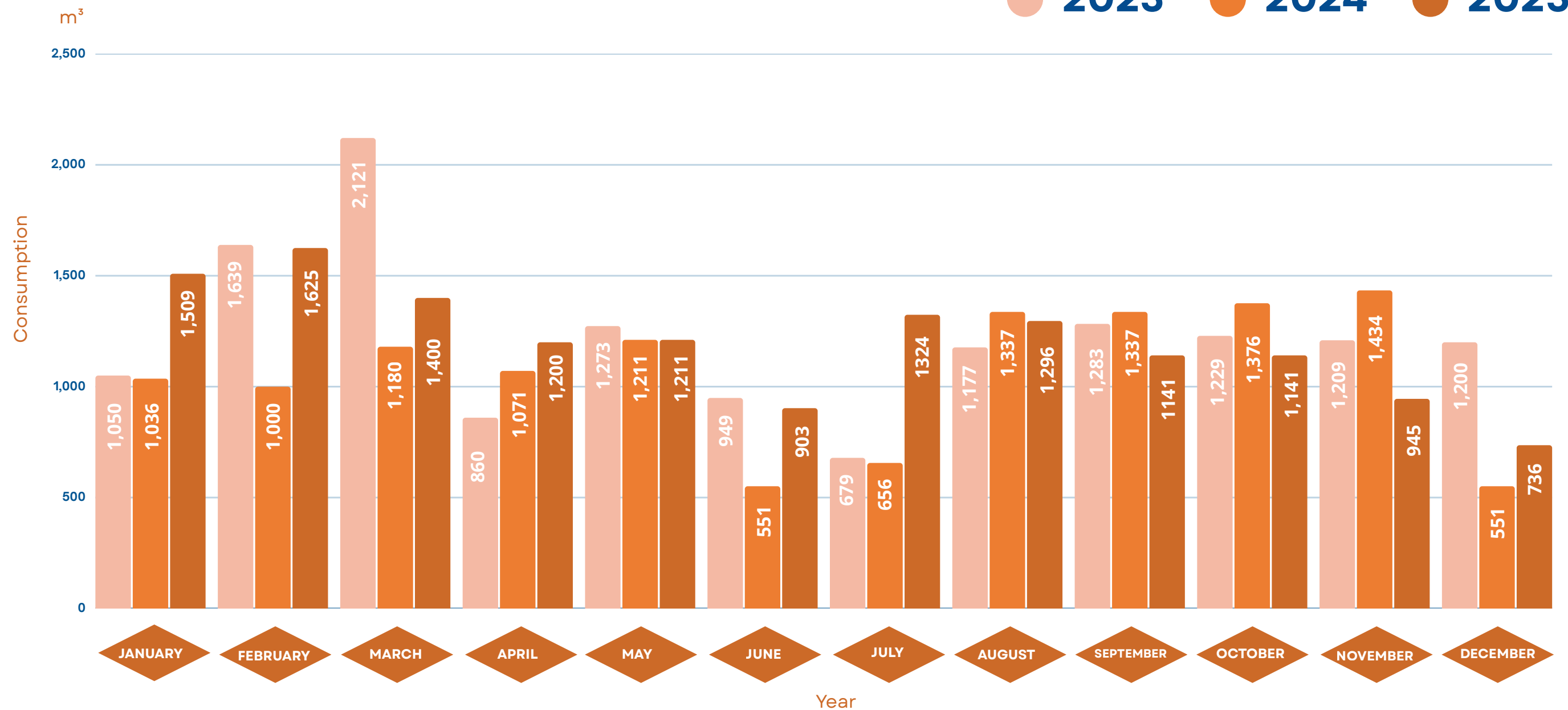
Monthly gas consumption Health Sciences Campus





Monthly gas consumption

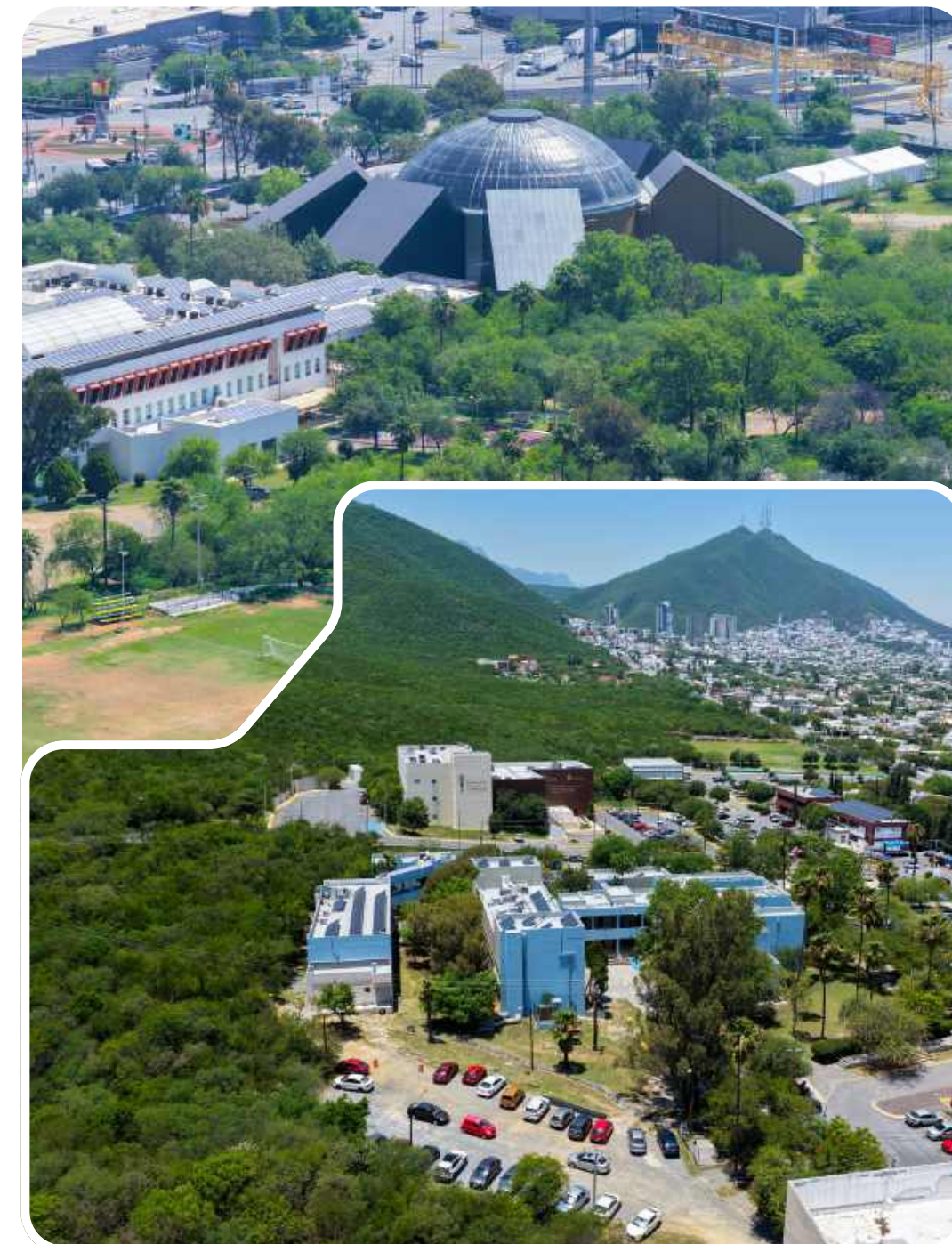
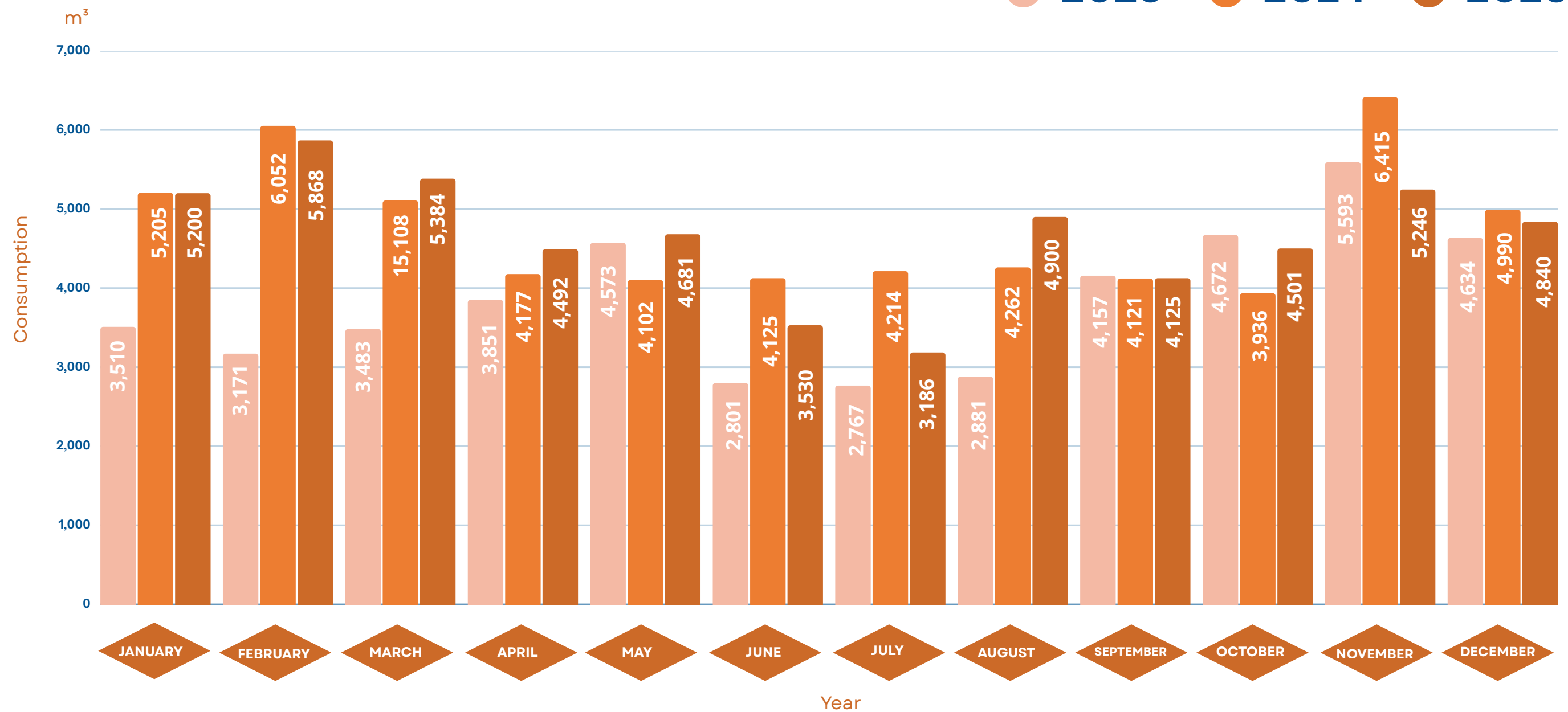
Agricultural Sciences





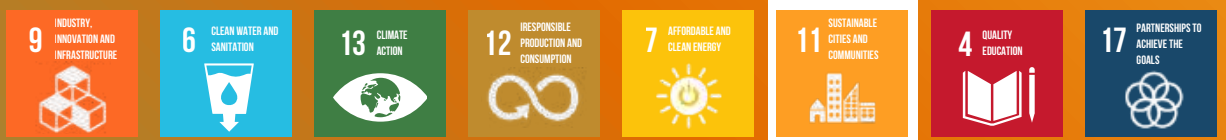
Monthly gas consumption

Mederos Campus



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SUSTAINABLE MOBILITY PROGRAM

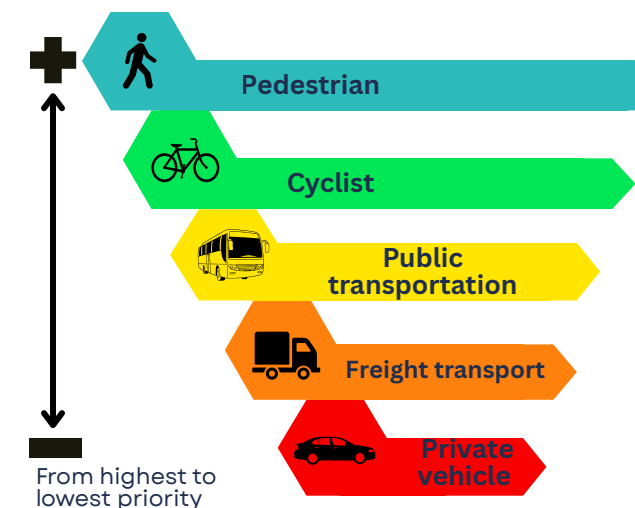
The Universidad Autónoma de Nuevo León (UANL) promotes a Sustainable Mobility Program aimed at transforming the way the university community travels within and to the various university campuses located in the Monterrey Metropolitan Area (MMA).

This program aims to reduce dependence on private cars and decrease the use of fossil fuel-powered vehicles by promoting more efficient, safe, accessible, and environmentally responsible transportation alternatives.

The initiatives promoted by the UANL address the need to tackle the environmental and urban challenges currently facing the MMA, particularly those related to air pollution, traffic congestion, rising greenhouse gas emissions, and the decline in quality of life resulting from the intensive use of motorized transportation. Given this situation, the UANL promotes a transition toward collective, electric, and non-motorized mobility schemes, while also strengthening a university culture based on environmental responsibility and collective well-being.



The Inverted Mobility Pyramid



As part of the vision guiding this program, the UANL adopts the principles established by the Institute for Transportation and Development Policy (ITDP), particularly the model known as the Inverted Mobility Pyramid. This approach establishes a hierarchy of priorities in the design and management of urban space, placing pedestrians at the top and subsequently prioritizing non-motorized modes of transportation, public transit, and, finally, private cars.

From this perspective, the University recognizes that university campuses must be conceived as accessible, safe, and inclusive spaces where people can move efficiently and with minimal environmental impact. Consequently, the University promotes the strengthening of pedestrian infrastructure, bike lanes, secure bicycle parking areas, improved access points, and strategies aimed at encouraging active mobility and reducing car use within university environments.

Likewise, this model helps foster a new culture of sustainable mobility among students, faculty, researchers, administrative staff, and visitors, promoting healthier travel habits that align with the principles of sustainable development.





◆ Mobility, Inclusion, and Institutional Development

Sustainable mobility is also a strategic element for strengthening social inclusion and university accessibility. In accordance with the principles promoted by the 2016 UN-Habitat Agenda, the UANL recognizes that equitable access to efficient mobility systems is a fundamental component for ensuring equal opportunities, strengthening social cohesion, and improving the population's quality of life. NU-Hábitat 2016, la UANL reconoce que el acceso equitativo a sistemas de movilidad eficientes representa un componente fundamental para garantizar igualdad de oportunidades, fortalecer la cohesión social y mejorar la calidad de vida de la población.



For this reason, the Sustainable Mobility Program is aligned with the objectives established in the University's Institutional Development Plan, particularly those related to building more sustainable, resilient, and people-centered campuses. Through these actions, the UANL seeks to create university spaces that promote safe and accessible mobility for all members of the community, including people with disabilities, pedestrians, and users of alternative modes of transportation.

Similarly, the promotion of collective and non-motorized mobility schemes strengthens integration among different university spaces and contributes to the development of more orderly, functional, and environmentally responsible urban environments.



◆ Environmental and Social Benefits

The UANL Sustainable Mobility Program generates significant benefits in the environmental, social, and economic spheres. From an environmental perspective, actions aimed at reducing the use of fossil fuel-powered vehicles help lower greenhouse gas emissions, air pollutants, and particulate matter that affect air quality in the Monterrey Metropolitan Area.

Likewise, the promotion of active mobility through cycling and walking fosters healthier lifestyles by encouraging physical activity and reducing factors associated with a sedentary lifestyle and various diseases linked to physical inactivity.

From a social perspective, the program strengthens inclusion and equity by expanding access to safe, affordable, and sustainable transportation alternatives for the university community. Furthermore, it encourages a culture of shared environmental responsibility and social cohesion, helping to build more integrated, participatory, and environmentally conscious university communities capable of addressing contemporary sustainability challenges.

From an economic standpoint, sustainable mobility helps reduce individual transportation costs, lower fuel consumption, and optimize the use of existing road infrastructure. In this way, the UANL reaffirms its commitment to building a sustainable university model that contributes not only to the well-being of its community but also to the resilient and environmentally responsible development of the Monterrey Metropolitan Area.

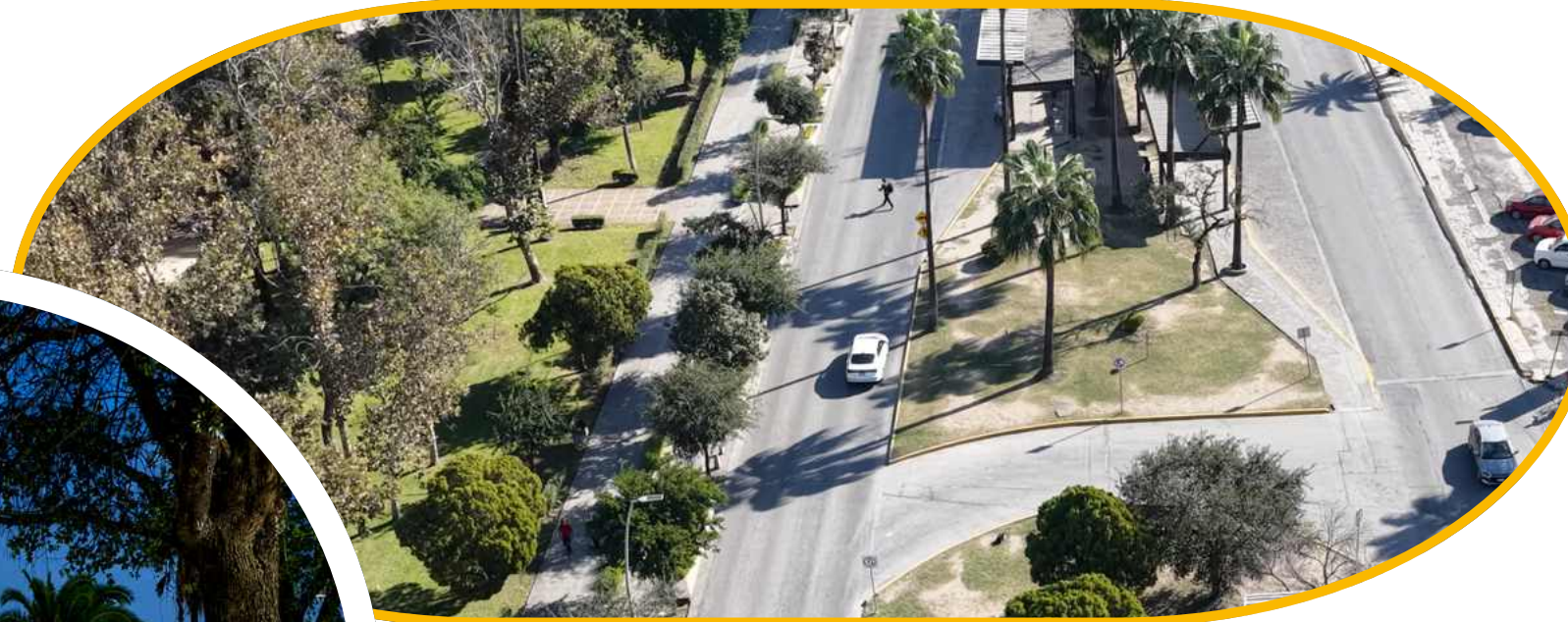




◆ Conecta-UANL Program

The Conecta-UANL Program is one of the most important urban transformation and sustainable mobility initiatives promoted by the Universidad Autónoma de Nuevo León (UANL) in recent years. Since its implementation, this program has contributed significantly to the modernization and humanization of university spaces, promoting a new vision of the campus centered on people, universal accessibility, and sustainability.

Throughout its operation, Conecta-UANL has driven significant changes in the layout and functioning of Ciudad Universitaria, promoting the reduction of physical barriers to pedestrian movement, the strengthening of connectivity between academic departments, and the revitalization of public spaces aimed at improving community life and the quality of life for the university community.



One of the program's main achievements has been the strengthening of infrastructure for pedestrian and accessible mobility through the construction and adaptation of walkways, safe crossings, ramps, paths, and circulation areas that facilitate the safe movement of students, faculty, staff, and visitors, including people with disabilities. These actions have enabled progress toward a more orderly, inclusive, and functional campus model, where pedestrians occupy a priority place within the university's dynamics.

Likewise, the program has contributed to strengthening institutional strategies for sustainable mobility, promoting safer and more efficient transit within university campuses, as well as a gradual reduction in dependence on private cars. This transformation has made it possible to reclaim spaces previously dominated by vehicular infrastructure and convert them into areas of social interaction, integration, and well-being for the university community.





Similarly, Conecta-UANL has fostered the creation of more resilient and environmentally responsible university spaces by increasing green areas and tree-planting initiatives on the University Campus. The incorporation of vegetation and urban trees not only improves the appearance and environmental comfort of the campuses but also generates significant ecological benefits related to carbon sequestration, thermal regulation, water infiltration, and the conservation of urban biodiversity.



The humanization of university campuses promoted through this program reflects the UANL's institutional commitment to building safer, healthier, and more sustainable environments, aligned with international trends in urban planning and sustainable university development.

Thanks to all of the above, Conecta-UANL has established itself as a comprehensive strategy that integrates mobility, accessibility, green infrastructure, and community well-being, strengthening the UANL's leadership in sustainability at the national and international levels.





The case of Ciudad Universitaria

Within the UANL campuses, Ciudad Universitaria represents a priority area for intervention due to the high percentage of the population that travels to and from its facilities on a daily basis. In this context, non-motorized mobility takes on strategic importance, as it allows for safer, more accessible, and more sustainable internal travel. Committing to this model brings direct environmental benefits, such as reduced pollutant emissions, but also social benefits, as it strengthens the social fabric by creating adequate public spaces, communal areas, and pedestrian corridors that reinforce social cohesion.



Program guidelines

The core strategy of the Universidad Autónoma de Nuevo León (UANL) sustainable mobility program is to promote public transportation, especially the metropolitan electric transportation system (subway), which is recognized for its efficiency and low environmental impact.

To extend coverage to areas not directly connected by the subway, the use of licensed urban bus routes is encouraged, with radial, peripheral, and local routes that facilitate access to the different campuses. This also includes intercity buses, which serve students from nearby municipalities, and public transport hire services, such as taxis and digital platform vehicles (Uber, DiDi, Cabify, Beat, among others), which complement the access network.

In coordination with local transportation authorities, bus routes to campuses have been optimized, with more than 40 routes serving the areas surrounding Ciudad Universitaria and improving frequency, coverage, and accessibility for the university community.

- | | |
|----------------------|--|
| • R-Álamo Santiago | Directo UANL |
| • R-Auto Transportes | Azules y Amarillos General Terán-Monterrey - UANL |
| • R-Interenlace | Directo Cadereyta - UANL |
| • R-1 | Sector 1 San Nicolás - Tecnológico-Central - Las Puertes |

- | | |
|------------|---|
| • R-1 | Sector 4 Pilares - Central de Autobuses |
| • R-16/316 | La Unidad - UANL |
| • R-17 | Auditorio San Pedro - UANL |
| • R-17 | Pio X-UANL |
| • R-17 | Santuario-UANL |
| • R-88 | Cosmópolis-Jardines |
| • R-88 | Cosmópolis-Moisés Sáenz |
| • R-101 | Ébanos |
| • R-101 | Manantial |
| • R-134 | Fresnos-Puentes-15 de Mayo |
| • R-134 | Telmex-Metroplex-15 de Mayo |
| • R-207 | Penitenciaría |
| • R-209 | Escobedo-Punta Loma-Bosques |
| • R-209 | Escobedo-Punta Loma-Renacimiento-Olivos |
| • R-209 | Exprés Escobedo-Hidalgo |
| • R-213 | Cosmópolis-UANL |
| • R-213 | Directa-UANL |
| • R-213 | Quintas-UANL |
| • R-219 | Sector 1 Tréboles-UANL-Bernardo Reyes |
| • R-220 | Pedregal |
| • R-220 | Provilleón |
| • R-226 | Sector 1-Buen Vista-Balcones-Alameda |
| • R-226 | Sector 3-Buena Vista-Joyas-Alameda |
| • R-227 | Clouthier-16 de Septiembre |
| • R-227 | Clouthier-Constitución |
| • R-227 | Emiliano-16 de Septiembre |
| • R-227 | Emiliano-Constitución |

- | | |
|---------|---------------------------------|
| • R-229 | Ébanos-Metroplex-Mercado Juárez |
| • R-229 | Robles-Metroplex-Mercado Juárez |
| • R-232 | La Unidad |
| • R-232 | La Unidad-San Marcos |
| • R-316 | Libramiento-Paraje San José |
| • R-320 | Fresnos-Puentes-Colón |
| • R-685 | Sector 1 Salinas Directo |
| • R-685 | Sector 2 Bosques de los Nogales |





At the same time, the incorporation of non-motorized and electric mobility systems, such as bicycles, electric scooters, and new-generation light transport, is being promoted. To facilitate their adoption, bike lanes, storage stations, and internal circulation spaces have been developed on campuses. These measures generate environmental, economic, and health benefits, while promoting a cultural shift toward more sustainable forms of transportation, contributing to a reduction in private car use and improving urban mobility.

The UANL's sustainable mobility program is a comprehensive effort aimed for transforming the culture of transportation in the university community. By combining the promotion of public transportation, the strengthening of non-motorized mobility, the operation of the TigreBus and the adoption of international principles such as the Inverted Mobility Pyramid, the UANL not only responds to the environmental and mobility challenges of the Monterrey Metropolitan Area, but also positions itself as an institutional benchmark in the construction of more equitable and sustainable urban environments.

More than 84,000 people pass through the pedestrian areas of the UANL's Ciudad Universitaria campus every day



The electric public transit system known as the Metro transports more than **3.5** million people each year who study or work on the Ciudad Universitaria campus





Specific objectives

- Connect the interior of campuses with their immediate surroundings, prioritizing safe pedestrian mobility.
- Encourage the use of non-motorized transport within the campus to improve mobility.
- Discourage car use by reorganizing parking spaces.
- Establish collaboration agreements to efficiently link with key actors, including municipalities and state agencies.

Policies

- Priority will be given to programs and projects that promote the use of non-motorized means of mobility and pedestrian safety and integrity.
- Non-motorized mobility will be encouraged within campuses.
- Connections between agencies will be implemented, as well as alternatives to encourage the use and movement of non-motorized mobility.
- Efficiency and safety of internal public transportation systems will be developed.
- Projects for the reorganization and improvement of vehicular traffic routes will be established.
- Accessibility between campus spaces and buildings, as well as with the immediate external context will be promoted.



Organization

- Planning and implementation of a support system for non-motorized mobility around campus.
- Coordinate actions between departments and schools related to planning, removal and improvement of physical barriers that prevent free movement between spaces and buildings.
- Coordinate the planning with external urban transportation, schedule and safety in its urban routes.
- Develop urban improvement measures at the entrances of the campus for regulating the entry and exit of non-motorized vehicles.

Planning

- Promote the improvement of roads, sidewalks and crosswalks for the non-motorized mobility around campus.
- Promote the non-motorized mobility and zero carbon emissions.
- Promote the reorganization of spaces intended to provide services to motorized vehicles.
- Manage the removal of obstacles, elements, and/or barriers that put at risk the safety of non-motorized mobility and universal accessibility.



The Sustainable Mobility projects improved by UANL
in 2025 benefit more than

80,000

members of the university community

Projects

During 2025, field studies, architectural design, and technical specifications development continued for projects involved in the Sustainability Program, in addition to the construction and partial development of projects that form part of this program.

1.- Conecta

Mobility project for the connection and closure of the pedestrian walkway and bicycle lane circuit on the Ciudad Universitaria Campus, contemplating the construction of a pocket park and a drop-off and pick-up bay for public transportation.

Area: 3.128.20 m²

Beneficiaries: 80,000 people

Components:

- a) One-way bicycle lane 222.00 m
- b) Trees: 35 individuals
- c) Bollards: 50 pieces
- d) Urban lighting: 30 pieces.



2. Conecta Stage 3. South side stage 1

Renovation of the south side of Pedro de Alba Avenue, including reconstruction of the pedestrian sidewalk with universal accessibility features to ensure universal accessibility and safe, comfortable spaces.

Area: 1,201.17 m²
Beneficiaries: 80,000

- Components:**
- a) TigreBus structure Dimensions 5.30 X 24 m
 - b) Bollards: 26 pieces
 - c) Waste containers: 15 pieces
 - d) Water throughs: 2 pieces
 - e) Road lights: 11 pieces
 - d) Pedestrian lights: 6 pieces



3. Conecta Stage 3. South area stage 2.

Rehabilitation of the south area of Pedro de Alba Avenue that considers the reconstruction of the pedestrian sidewalk with components of universal accessibility, in order to ensure universal accessibility, safe and comfortable spaces.

Area: 1,201.17 m²
Beneficiaries: 80,000

- Components**
- a) Bollards: 16 pieces
 - b) Trash Modules: 5 pieces

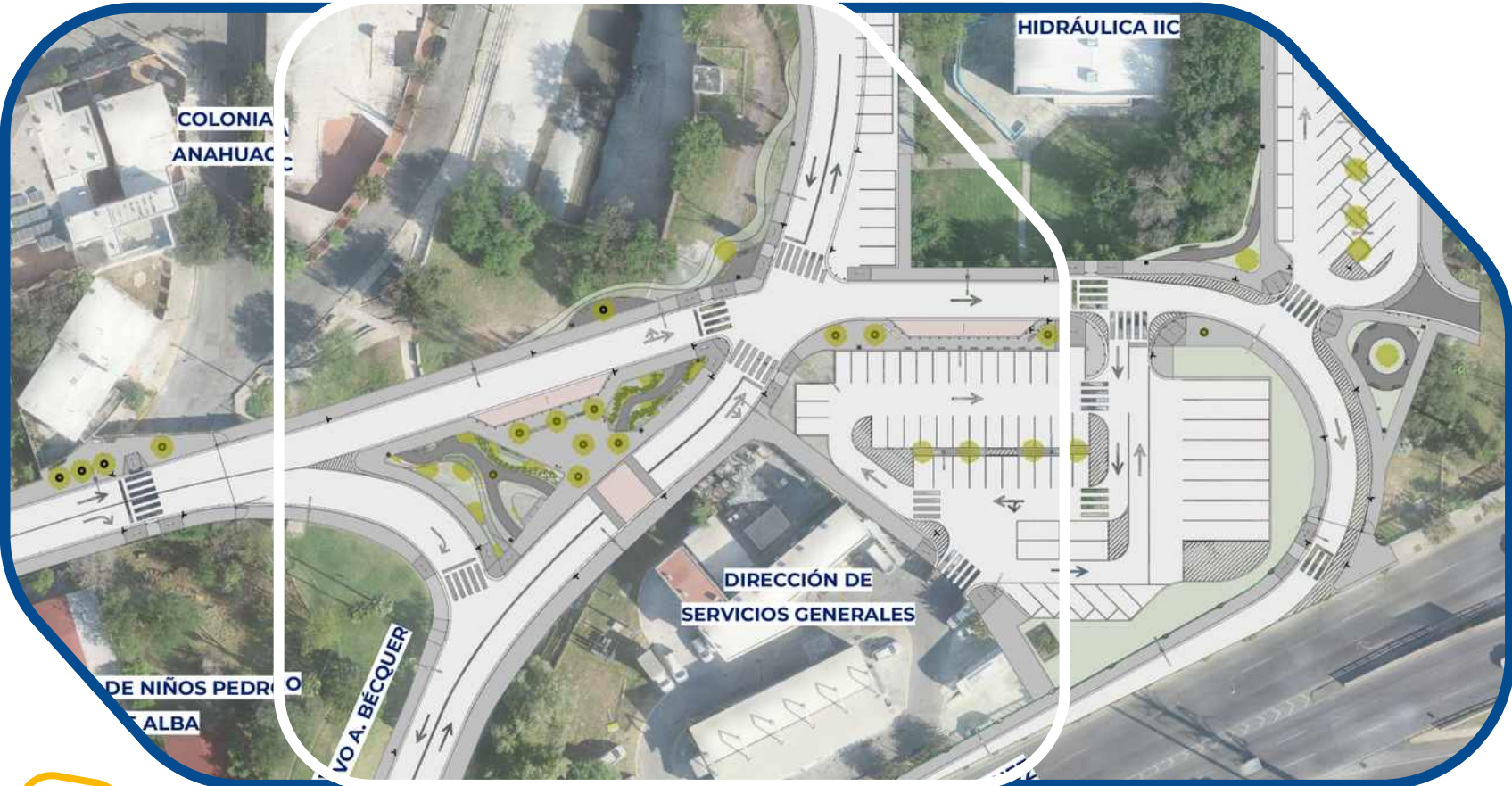




4. Conecta. Gasa Norte.

The plan is to move the bridge and install an elevator, landing, and stairs. Add trees, street furniture, and floor finishes.

Area: 5.20 m²
Development: 91 ML
Slope: 6%



5. Green corridor. School of Communication Sciences, Green Corridor Acueducto Avenue

Comprehensive mobility project from the entrance of School of Communication Sciences to Acueducto Avenue, including the creation of a green corridor. Complying with the reorganization premises of public space, parking, walkways and accesses, as well urban mobility and equipment elements.

Area: 1,174.00 m²
Beneficiaries: 80,000
Components
a) Bicycle lane: 3,438.00 m²
b) Sidewalk: 5,089.00 m²
c) Trees: 287 pieces
d) 7 Safe Crossings – Speed Bumps.
e) Ascent and descent bay: 4.
f) Waiting areas: 2
g) Viewpoints - Resting Area: 5





6. Green Corridor. Gonzalitos Medical District.

Integral mobility project prioritizing non-motorized transport, urban design for sidewalk widening, reorganization of vehicle flow, street-level commerce, and parking collectors. Universal accessibility infrastructure, improvement of bus stations with big data for circuit control and recovery of public space.

Area: 1,174.00 m²

Beneficiaries: 22,575

Components

A) Bicycle lane: 3,438.00 m²

B) Sidewalk: 5,089.00 m²

C) Trees: 287

D) 7 Safe crossings – Speed Bumps.

E) 4 Ascent and descent bays.

F) 2 Waiting areas

G) 5 Viewpoints - Resting area





Vehicle Fleet

The vehicle fleet of the Universidad Autónoma de Nuevo León (UANL) is a strategic component for ensuring safe, efficient, and accessible mobility for the university community within and between the various university campuses. Through a fleet comprising buses, utility vehicles, and specialized units, the UANL strengthens institutional initiatives aimed at improving connectivity, optimizing transportation services, and promoting sustainable public transportation schemes.

In recent years, the UANL has driven a continuous process of modernizing its vehicle fleet, incorporating more efficient, safer, and environmentally responsible vehicles capable of meeting the mobility needs of students, faculty, and administrative staff. This effort has improved service quality and reduced the environmental impact associated with university transportation operations.

As part of this strategy, the University has promoted the gradual incorporation of vehicles with lower environmental impact technologies, including electric vehicles and transportation systems with higher energy efficiency standards, thereby contributing to reducing pollutant emissions and advancing toward mobility models compatible with the principles of sustainability and climate action.



Likewise, the collective use of university vehicles represents a key measure to reduce dependence on private cars and alleviate pressure on road infrastructure in university and urban settings. Through this model, the UANL promotes more orderly, efficient, and accessible mobility, while also enhancing user safety and comfort.

Similarly, the university’s vehicle fleet operates under an ongoing preventive and corrective maintenance program that ensures the vehicles’ operational readiness, reliability, and safety. These measures help optimize vehicle performance, extend their service life, and ensure appropriate conditions for providing quality transportation services.

Vehicle Fleet

	Central Office	Academic Office	Total
Cars	83	85	168
Pickup truck	98	213	311
Cargo truck	11	15	26
Bus	61	150	211
Motorcycle	7	3	10
Electric	2	1	3
TOTAL			729





TigreBus

TigreBus is the safe and free public transportation system of the Universidad Autónoma de Nuevo León (UANL), created to facilitate the mobility of thousands of students, faculty, and university staff within the campuses and among the various university facilities located in the Monterrey Metropolitan Area (MMA). Its operation is one of the main institutional strategies to strengthen sustainable mobility, promoting public transportation alternatives that reduce dependence on private cars and cut down on the use of fossil fuel-powered vehicles.

This system addresses the need to offer an efficient, accessible, and environmentally responsible transportation service capable of helping to reduce traffic congestion and the pollutant emissions associated with the growing number of vehicles circulating in the city daily. Through the TigreBus, the UANL promotes a mobility model based on principles of sustainability, social inclusion, and community well-being, aligned with institutional policies of responsible development.

One of the main strengths of the TigreBus is that it is free, which represents significant financial support for the university community, particularly for thousands of students who need to travel daily between schools and university facilities. By eliminating economic barriers to transportation access, this system establishes itself as a tool for equity and social inclusion, ensuring equal opportunities and helping to reduce the costs associated with urban mobility.



In the environmental sphere, the TigreBus represents a sustainable alternative that helps reduce the institution's carbon footprint. By promoting the use of public transportation and reducing the number of private vehicles in circulation on and around university campuses, a significant reduction in greenhouse gas emissions and air pollutants is achieved, thereby strengthening institutional efforts aimed at mitigating the effects of climate change and improving air quality in the MMA.

On the social front, this system promotes safer, more accessible, and more efficient mobility conditions for the university community. In addition to facilitating travel between schools and academic spaces, the TigreBus fosters university integration, improves connectivity between campuses, and contributes to creating more orderly and functional urban environments.



**In 2025, TigreBus provided just over
116,000 free rides**



The positive results achieved by the TigreBus have made this system a regional benchmark in sustainable mobility, inspiring the development of public transportation schemes promoted by various municipalities in the metropolitan area. This is how the UANL’s experience demonstrates that it is possible to build more efficient, inclusive, and environmentally responsible mobility models capable of generating social, economic, and environmental benefits for the population.

As a result, TigreBus has established itself as one of the most important pillars of the UANL’s Sustainable Mobility Program, reaffirming the institution’s commitment to building a socially and environmentally responsible university, focused on the well-being of its community and the sustainable development of the region.

Tigrebus

Origin campus	Service Hours	Number of units	Number of trips per unit	Total daily trips
Mederos	6:16 a.m. to 9:15 p.m	5	47	235
Health Sciences	6:16 a.m. to 9:15 p.m.	2	70	140
Agricultural Sciences	6:15 a.m. to 8:30p.m.	2	33	66
Ciudad Universitaria	6:20 a.m. to 9:15 p.m.	1	50	50
Center for Research and Innovation in Aeronautical Engineering (CIIA)	6:15 a.m. to 9:30 p.m.	1	7	7
TOTALES		11	207	498

In 2025, the UANL generated savings of nearly 60 million pesos for users through the TigreBus program



Environmental and economic benefits derived from the operation of university public transportation TigreBus

Year	Number of daily routes	Total of services per year	Total of beneficiaries	Savings generated by the program for users
2023	478	111,852	5,704,451	\$ 3,145,170.00 (USD)
2024	497	116,298	5,931,198	\$ 3,442,367.00 (USD)
2025	498	116,532	5,943,132	\$ 3,449,293.00 (USD)

*Considering a \$0.55 (USD) rate which applies for students in 2025.



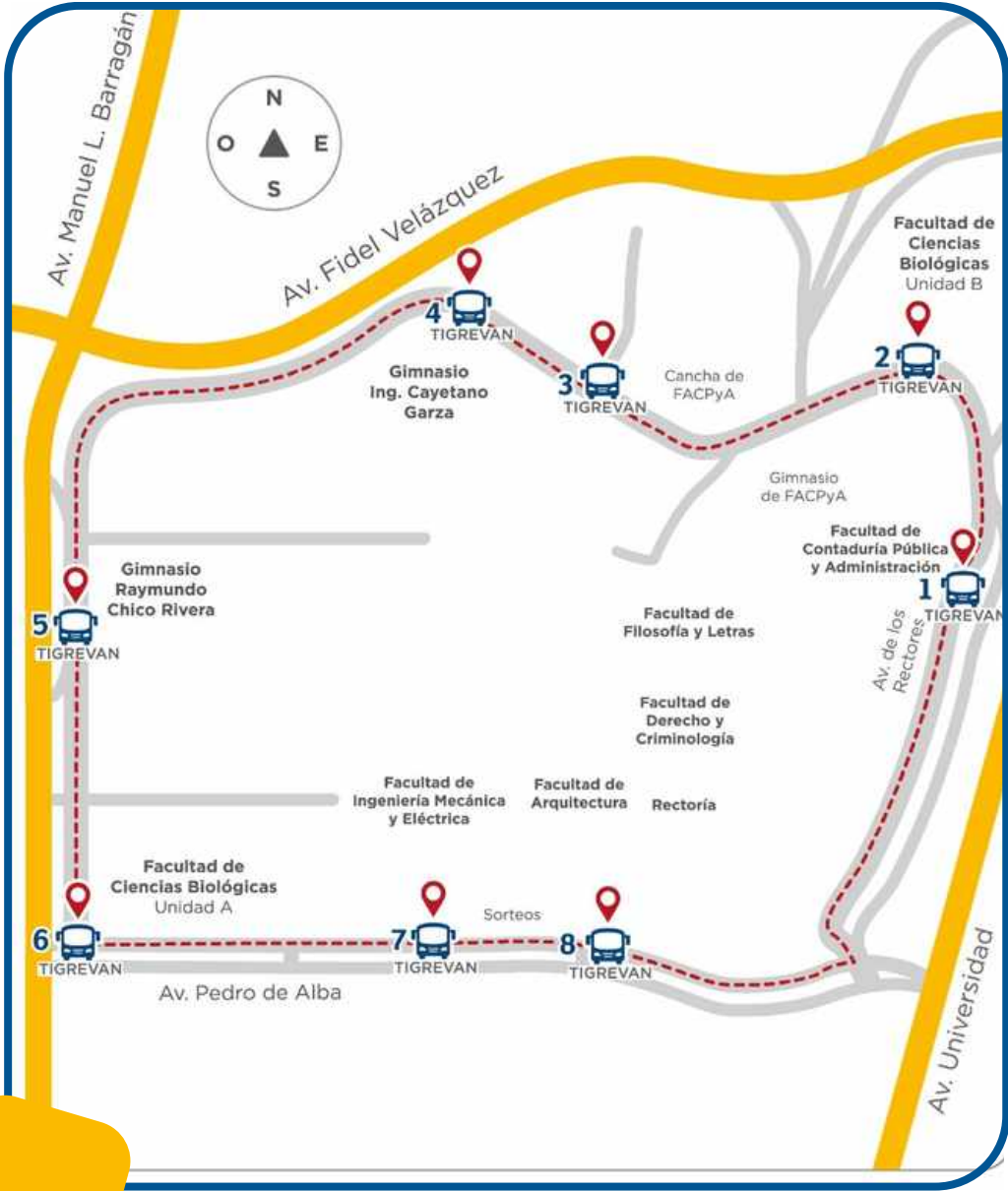


Interconnection service between campuses

Origin campus	Destination campus	Service hours	Total daily services
Ciudad Universitaria	Mederos	6:15 (4 buses)	19
		7:50 (2 buses)	
		10:15 (1 bus)	
		11:00 (3 buses)	
		12:15 (1 bus)	
		14:00 (2 buses)	
		15:20 (1 bus)	
		16:00 (3 buses)	
		18:10 (1 bus)	
		20:00 (1 bus)	
Mederos	Ciudad Univesitaria	7:00 (1 bus)	15
		9:30 (1 bus)	
		11:15 (1 bus)	
		13:15 (2 buses)	
		15:00 (2 buses)	
		17:20 (2 buses)	
		18:15 (1 bus)	
		19:00 (2 buses)	
		21:15 (3 buses)	



TIGREVAN ROUTE
Ciudad Universitaria Campus

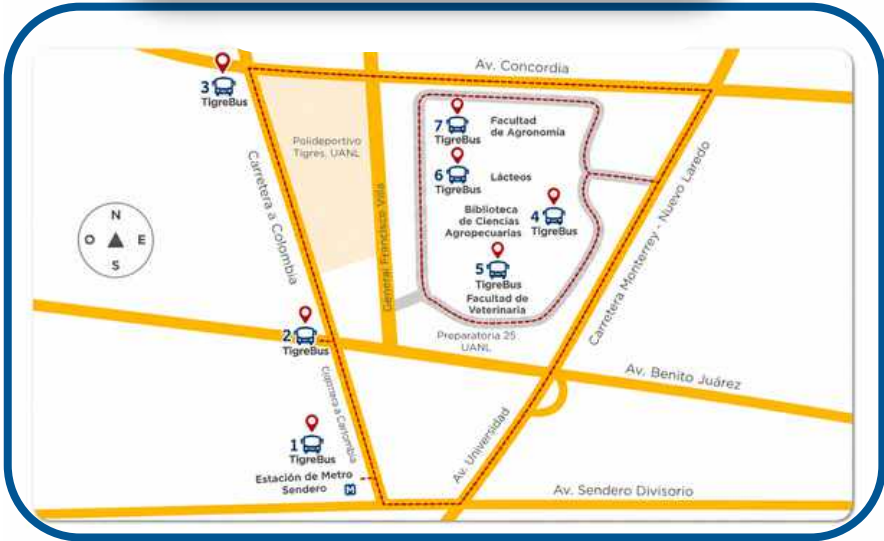


TIGREBUS ROUTE
Mederos Campus





TIGREBUS ROUTE
Agricultural Sciences Campus



TIGREBUS ROUTE
Health Campus
(Técnica Médica)



- Circuito ida
Circuito vuelta
- Paradas:**
1. Estación del metro Hospital
 2. Preparatoria No. 15 (Madero)
 3. Facultad de Medicina
 4. Preparatoria Técnica Médica
 5. Facultad de Enfermería
 6. Facultad de Psicología
 7. Plaza (calles Hermosillo y Chihuahua)
 8. Banregio (calle Hermosillo y Ave. Simón Bolívar)
- Horarios:**
- Del metro Hospital a Técnica Médica
6:45 a.m., 12:45 p.m. y 1:45 p.m.
- De Técnica Médica a metro Hospital
1:00 p.m., 2:00 p.m., y de 7:00 p.m. a 9:00 p.m.

TIGREVAN ROUTE
Health Campus



Origin campus

Destination campus

Service hours

Total daily services

Ciudad Universitaria

Health

6:15 (1 bus)

1

Ciudad Universitaria

Health

6:15 (1 bus)

1

Health

Ciudad Universitaria

14:00 (1 bus)
21:15 (1 bus)

2

Health

Ciudad Universitaria

14:00 (1 bus)
21:15 (1 bus)

2

Ciudad Universitaria

Agricultural Sciences

6:15 (1 bus)

1

Metro Cuauhtémoc

Agricultural Sciences

6:30 (1 bus)

1

Agricultural Sciences

Ciudad Universitaria

20:30 (2 buses)

2

Ciudad Universitaria

Center for Research and Innovation in Aeronautical Engineering (CIIA, for its acronym in Spanish)

8:45
13:40
16:40
(1 bus per round trip)

3

Center for Research and Innovation in Aeronautical Engineering (CIIA, for its acronym in Spanish)

Ciudad Universitaria

12:00
19:30
21:30
(1 bus per round trip)

3





e-UANL Digital Campus

The e-UANL Digital Campus app represents one of the main digital transformation strategies promoted by the Universidad Autónoma de Nuevo León (UANL) to strengthen the efficiency, accessibility, and sustainability of university services. This technological platform is an innovative tool that allows the university community to access various services related to mobility and institutional digital management in a fast, secure, and free manner, facilitating interaction between users and university systems through smart solutions designed to improve the daily experience of students and staff.

In terms of sustainable mobility, the app makes it easy for students to obtain free tickets for intercampus travel on the TigreBus system, allowing them to complete this process quickly, conveniently, and securely from mobile devices. It also enables the management of tickets with preferential student rates for public transportation routes connecting the Monterrey Metropolitan Area with the various university campuses, simplifying access to mobility benefits and reducing wait times and in-person procedures.

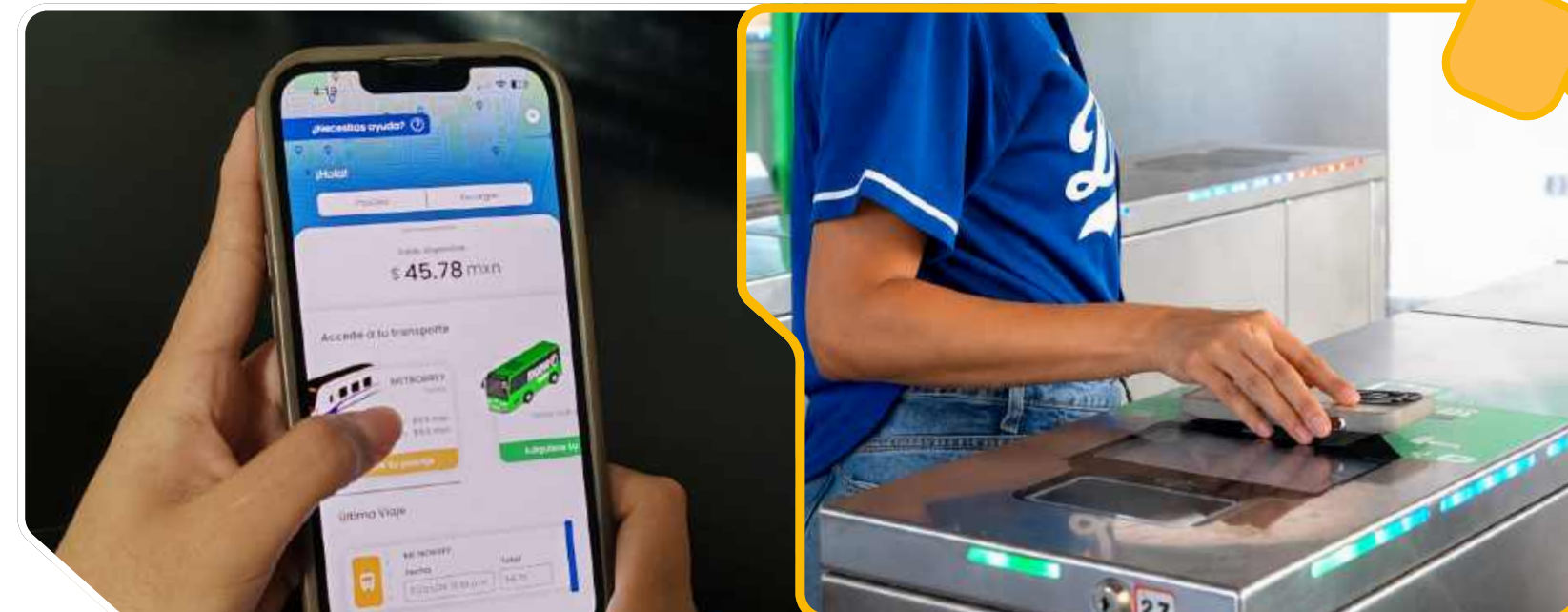
The incorporation of these digital tools enhances accessibility and equity by ensuring that thousands of students can easily and freely access transportation services that help reduce the costs associated with daily commuting. In this way, UANL promotes technological solutions focused on the well-being of the university community and on building more efficient and inclusive environments.



From the perspective of technological innovation, e-UANL Digital Campus also serves as an example of the institution's drive toward developing smart ecosystems linked to the Internet of Things. The digital integration of mobility services, platforms, and systems enables the optimization of processes, improved real-time information management, and the strengthening of the institution's capacity to efficiently administer university resources and services.

Through such initiatives, the University moves toward the consolidation of smart campuses, where connectivity, data analysis, and process automation contribute to improving the user experience and strengthening sustainability-oriented decision-making. The digitization of mobility services not only increases operational efficiency but also helps reduce paper consumption, streamlines traditional administrative processes, and promotes more modern and environmentally responsible management models.

Similarly, the app helps create safer conditions and greater control over access to university transportation services by integrating digital user validation and management mechanisms that optimize operations and provide greater reliability for the university community.





Integrated routes through which UANL students can purchase their tickets at a preferential student rate on the E UANL Campus Digital App:

• Route 226 • Jaral • Route 214 • Route 227 • Route 227 • Route 1 • Route 1 • Route 1 • Route 130 • Route 130 • Route 130 • Route 2 • Route 201 • Route 201	- Bosques-Alameda - Sendero-Villas Del Arco - Mirador De San Antonio - Clouthier - Emiliano Zapata - Alianza Real - Vistas Del Carmen - Palmiras - Centro Por Juárez - Alameda - Hospital Universitario - Normal - Mitras Perimetral Sur Station - Mitras Perimetral North Station	• Route 223 • Route 223 • Route 223 • Route 223 • Route 310 • Route 310 • Route 221 • Route 221 • Route 105 • Route 105 • Route 185 • Route 225 • Route 85 • Route 224	- Quinta Las Sabinas Pablo Livas - Quinta Las Sabinas Gine - Quinta Las Sabinas Eloy Cavazos - San Francisco Centro - Heroes San Bernabé Station - Villazul San Bernabé Station - Apodaca Clinic 6 Sendero - Apodaca Clinic 6 Concordia - Parques - San Isidro - Pablo Livas (formerly Route 83) - Misión San Pablo - Tierra Propia Salvador Chávez - Monte Cristal	• Route 224 • Route 224 • Route 70 • Route 1 • Route 1 • Route 228 • Route 40 • Route 172 • Route 130 • Route 310 • Route 310 • Route 310 • Route 310 • Route 310 • Route 172 • Route 40 • Route 340 • Route 217 • Route 130 • Route 209 • Route 209 • Route 232 • Route 220 • Route 220 • Route 88	- Arboledas - Lomas Valle Condesa - Vivienda Popular - Central - El Carmen - Anzures via Ruiz Cortinez - Sector 2 San Miguel – Cumbres - Sector 1 Cometas Direct Center - Agropecuaria–Alianza Real - Fomerrey 110 - Brisas - Heroes Cumbres - Minas Metro - Parques - Sector 1 Cometas Centro Directo - Sector 1 Paraje–Sendero - Sector 3 Buena Vista–Metro San Bernabé - Guadalupe–Escobedo - Agropecuaria–Alianza Real - Escobedo–Punta De La Loma - Renacimiento–Santa Luz - La Unidad - Provileon - Pedregal - Cosmopolis
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• Route 106 • Route 223 • Route 130 • Route 85 • Route 172	- Lomas Circuit – Ermita - Teofilo Salinas - Barrio Oaxaca– Centro - Rancho Viejo – Tequila - Sector 1 Cometas Centro Directo - García Circuit - García – San Bernabé - Jaral Sendero – Villas Del Arco
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UNIVERSIDAD AUTÓNOMA DE NUEVO LEÓN

ANNUAL
SUSTAINABILITY
REPORT
2025





EDUCATION AND RESEARCH FOR SUSTAINABILITY

For more than a decade, the Universidad Autónoma de Nuevo León (UANL) has been implementing an institutional strategy aimed at integrating sustainability into the core functions of teaching, research, and community engagement, recognizing that higher education institutions play a fundamental role in training professionals capable of addressing the environmental, social, and economic challenges of the 21st century. Through this approach, the University promotes the development of a culture of sustainability that strengthens the university's social responsibility and contributes to the transformation of traditional development models into more equitable, resilient, and environmentally responsible frameworks.

In the educational sphere, the UANL promotes the cross-cutting integration of content related to sustainable development into academic programs, fostering critical thinking, environmental ethics, innovation, and responsible decision-making. Through training activities, faculty development, interdisciplinary projects, and learning experiences linked to real-world issues, the UANL strengthens students' preparation with a comprehensive vision of sustainability, enabling them to practice their profession with social responsibility and a commitment to collective well-being and environmental conservation.

Complementarily, the scientific and technological research conducted at UANL constitutes a strategic component for generating knowledge and innovative solutions aimed at addressing issues such as climate change, biodiversity loss, pollution, the efficient management of natural resources, and the resilience of urban and regional ecosystems. Through interdisciplinary projects, national and international collaboration networks, and outreach initiatives with various sectors of society, the University promotes research with scientific, social, and environmental impact.





Likewise, the participation of students, faculty, and researchers in applied projects, community programs, and science outreach activities strengthens the bond between the University and society, allowing the knowledge generated to transcend the academic environment and contribute to the building of more sustainable communities. These actions reflect the UANL's institutional commitment to the 2030 Agenda and to fulfilling the Sustainable Development Goals, particularly those related to quality education, sustainable cities and communities, responsible production and consumption, peace, and partnerships to achieve the goals.

Through all these actions, the UANL reaffirms its national and international leadership as a higher education institution committed to training highly skilled, ethically responsible human resources with a vision focused on driving social and environmental transformation processes for the benefit of present and future generations.





◆ University Academy for Sustainable Development (AUDS)

The University Academy for Sustainable Development (AUDS, for its acronym in Spanish) at the Universidad Autónoma de Nuevo León (UANL) represents a strategic initiative that strengthens institutional leadership in sustainability by consolidating a multidisciplinary network of specialists capable of advancing education, research, outreach, and university management through a sustainable approach. Its work constitutes a visionary effort aimed at integrating the principles of sustainable development into the academic life of the UANL, contributing to the training of professionals committed to addressing major contemporary challenges.

The importance of the AUDS lies in the fact that it has enabled the UANL to build a solid base of experts from diverse fields of knowledge, such as environmental sciences, engineering, health, social sciences, economics, law, and education, who set the standard for priority issues related to sustainability within the institution. Thanks to this specialized human capital, the University has a highly trained academic group that provides technical and scientific support to a wide range of academic, scientific, and outreach activities promoted by the UANL, including conferences, seminars, workshops, certificate programs, lectures, and faculty and student training programs.



AUDS held 102 academic events, which were broadcast via various digital platforms in both online and in-person formats



Likewise, the University Academy for Sustainable Development (AUDS, for its acronym in Spanish) has contributed significantly to strengthening the cross-cutting integration of sustainability into educational processes, promoting curriculum updates and the development of academic content linked to topics such as climate change, biodiversity, renewable energy, sustainable mobility, the circular economy, natural resource management, and urban resilience. This work has made it possible to broaden the comprehensive education of the student body and foster a university culture oriented toward environmental and social responsibility.

In the scientific sphere, the Academy promotes research and knowledge transfer projects that generate strategic information and solutions applicable to local and global challenges. Through collaborative work among faculty, researchers, and students, the AUDS strengthens the UANL's capacity to contribute to the design of strategies for climate change mitigation and adaptation, ecosystem conservation, sustainable water management, and the development of clean technologies, among other topics.

The AUDS has also established itself as a permanent space for dialogue, awareness-raising, and collective action, promoting the participation of the university community and various sectors of society in addressing current environmental challenges. Its work not only strengthens the UANL's institutional capacity to address the challenges of the 21st century, but also contributes to fostering leaders capable of promoting more reasonable, resilient, and sustainable development models.



The University Academy for Sustainable Development (AUDS, for its acronym in Spanish) of the Autonomous University of Nuevo León represents a visionary institutional effort aimed at consolidating education, research, and sustainability practices as fundamental pillars of university life. Its creation responds to the need to address the major environmental and social challenges of our time, preparing new generations to act responsibly in the face of climate change, biodiversity loss, natural resource management, and the construction of more just and resilient societies.

The primary mission of the AUDS is to integrate the principles of sustainable development into all areas of academic life, contributing to the education of professionals and citizens committed to environmental protection and social well-being. To achieve this goal, AUDS has adopted a multidisciplinary approach that constitutes one of its greatest strengths: its members are specialists from diverse fields of knowledge, including environmental sciences, economics, sociology, engineering, health sciences, law, and education. This diversity enables the academy to address environmental challenges from multiple perspectives and to develop comprehensive solutions tailored to a wide range of contexts.

Since its establishment, the AUDS has had a direct impact on curricular innovation at UANL by integrating sustainability-related values, practices, and knowledge into academic programs. Specialized courses have been developed and offered on topics such as climate change, natural resource management, renewable energy, energy efficiency, and sustainable development, among others. These courses are available not only to students enrolled in environmental programs but also to those pursuing other fields of study, with the goal of promoting a comprehensive education that fosters sustainability awareness and encourages sustainable practices across all professional disciplines.



In 2025, events organized by the AUDS
attracted more than **17,000** attendees

112 experts, including 12
international experts and 100
domestic experts





Likewise, scientific research constitutes a fundamental pillar of University Academy for Sustainable Development (AUDS, for its acronym in Spanish). Through innovative projects, researchers and students work on highly relevant topics such as biodiversity conservation, sustainable water management, climate change mitigation, and the development of clean technologies. These projects not only contribute to the advancement of knowledge but also generate practical and applicable solutions that help address local and global challenges, strengthening the university's engagement with society.

Another notable function of the Academy is its ability to influence institutional planning and operations. AUDS promotes sustainability criteria in university management, reflected in programs for waste separation and management, the promotion of sustainable mobility, and initiatives aimed at energy conservation and water-use efficiency. These actions not only reduce the university's environmental footprint but also serve as a replicable model for other higher education institutions.

In addition, AUDS has established itself as a platform for awareness-raising and social engagement. Each year, it organizes congresses, conferences, forums, and workshops aimed at both the university community and the general public, with the goal of fostering an open dialogue on the challenges and opportunities of sustainability. These events inspire students, academics, business leaders, and government representatives to undertake collaborative actions that support the transition toward a more sustainable future.

The creation of the AUDS represents a significant milestone in the history of UANL, as it aligns the university's academic mission with the Sustainable Development Goals (SDGs) promoted by the United Nations and reinforces its responsibility to educate leaders capable of addressing the environmental and social challenges of the twenty-first century. The benefits generated by AUDS extend across educational, scientific, institutional, and social dimensions, reaffirming UANL's position as a forward-looking university committed to sustainable development.



Educational offerings related to Sustainability issues

Degree

- 1 - Energy Management and Sustainable Development
- 2 - Biology
- 3 - Genomic Biotechnology
- 4 - Food Science
- 5 - Political Science and Government
- 6 - Strategic Communication and Digital Innovation
- 7 - Law (mixed modality)
- 8 - Economics
- 9 - Education
- 10 - Entrepreneurship and Innovation
- 11 - Nursing
- 12 - Peace and Human Rights Studies
- 13 - Social Responsibility Management
- 14 - Veterinary Medicine and Animal Science
- 15 - Medical Surgeon and Obstetrician
- 16 - Microbiology in Food Hygiene (dual modality)
- 17 - Nutrition
- 18 - Psychology
- 19 - Clinical Chemistry
- 20 - Chemist Bacteriologist Parasitologist
- 21 - Pharmaceutical Chemist Biologist
- 22 - Social Work and Human Development



- 23 - Agribusiness Engineering
- 24 - Agronomy Engineering
- 25 - Environmental Engineering
- 26 - Biomedical Engineering
- 27 - Biotechnology Engineering
- 28 - Civil Engineering
- 29 - Electromobility Engineering
- 30 - Forestry Engineering
- 31 - Geophysical Engineering
- 32 - Geology Engineering
- 33 - Mineral Resources Engineering
- 34 - Food Industry Engineering
- 35 - Artificial Intelligence
- 36 - Engineering
- 37 - Natural Resource
- 38 - Management Engineering
- 39 - Materials Engineering
- 40 - Mechanical and Electrical Engineering
- 41 - Petroleum Engineering
- 42 - Chemical Engineering



In 2025, UANL offered 42 undergraduate programs and 173 graduate programs related to sustainability.





Mastery

- 1 - Physical Activity and Sport with a focus on Health Promotion
- 2 - Project Management in Building Construction
- 3 - Medical Infrastructure Architecture
- 4 - Animal Science
- 5 - Science with a specialization
- 5 - Food Science
- 6 - Urban Affairs
- 7 - Molecular Biology and Genetic Engineering
- 8 - Cognition and Education
- 9 - Architecture Design and Management
- 10 - Medical Entomology
- 11 - Design Management and Innovation
- 12 - Environmental Engineering
- 13 - Biosystems Engineering
- 14 - Food Industry Engineering
- 15 - Immunobiology
- 16 - Medical Immunology
- 17 - Wildlife Management and Sustainable Development
- 18 - Plant Resource Management and Administration
- 19 - Construction Materials
- 20 - Microbiology
- 21 - Applied Microbiology
- 22 - Medical Microbiology
- 23 - Morphology
- 24 - Nutrition and Food Technology for Aquatic Organisms
- 25 - Sustainable Processes
- 26 - Health Psychology
- 27 - Biomedical Chemistry
- 28 - Materials Chemistry
- 29 - Environmental Chemistry and Technology
- 30 - Social Work



- 31 - Nursing Sciences
- 32 - Engineering Sciences with a Specialization in:
 - 32- Thermal and Renewable Energy
 - 33- Materials
 - 34- Nanotechnology
 - 35- Energy Technology
- 36 - Electrical Engineering Sciences
- 37 - Engineering Sciences with a Specialization in Materials
- 38 - Earth Sciences
- 39 - Artificial Intelligence and Optimization Sciences
- 40 - Nutritional Sciences
- 41 - Agricultural Production Sciences
- 42 - Public Health Sciences
- 43 - Forestry Sciences
- 44 - Political Science and Government
- 45 - Social Sciences with a Specialization in Sustainable Development
- 46 - Wildlife Conservation and Sustainability
- 47 - Criminology with a Specialization in Law with a Specialization in:
 - 48 - Constitutional Law and Governance
 - 49 - Constitutional Procedural Law
 - 50 - Electoral Law and Electoral Systems
- 51 - Constitutional Law with a Specialization in Human Rights
- 52 - Energy Law and Sustainability
- 53 - Family Law
- 54 - Human Rights





- 55 - Human Rights and New Technologies
- 56 - Interior Design and Architectural Environments
- 57 - Teaching with a Specialization in Higher Education
- 58 - Economics with a Specialization in Industrial Economics
- 59 - Medical and Veterinary Entomology
- 60 - Gender Studies and Sexual Diversity
- 61 - Gender in Public Policy
- 62 - Gerontology
- 63 - Management and Production of Artistic and Cultural Projects
- 64 - Government and Public Administration
- 65 - Hydrogeology
- 66 - Aeronautical Engineering with a Specialization in Materials



- 67 - Engineering with a Specialization in Electrical Engineering
- 68 - Engineering with a Specialization in Information Technologies
- 69 - Information Security Engineering
- 70 - Industrial Physical Engineering
- Industrial Engineering with a Specialization in:
 - 71 - Total Productivity
 - 72 - Manufacturing Systems
- 73 - Environmental Engineering and Management
- 74 - Educational Innovation
- 75 - Innovation and Entrepreneurial Development
- 76 - Research in Humanities, Culture, and Society
- 77 - Hematology Laboratory Science
- 78 - Integrated Management and Utilization of Biotic Resources
- 79 - Alternative Mechanisms for Dispute Resolution
- 80 - Traditional Chinese Medicine with a Specialization in Acupuncture and Moxibustion
- 81 - Alternative Methods of Conflict Resolution
- 82 - Sustainable Mobility
- 83 - Clinical Neuropsychology
- 84 - Comprehensive Nutrition
- 85 - Advanced Dentistry
- 86 - Restorative Dentistry
- 87 - Orthodontics
- 88 - Prosthodontics
- Psychology with a Specialization in:
 - 89 - Psychoanalytic Clinic
 - 90 - Brief Therapy
 - 91 - Gender Violence
- 92 - International Relations
- 93 - Ecological Restoration



- Clinical and hospital psychotherapy with orientation
 - 94 - Adults
 - 95 - Adolescents and Children
 - 96 - Couples and Family
 - 97 - Groups
- Regulation with a Specialization in:
 - 98 - Energy
 - 99 - Regulatory Improvement
 - 100 - Regulated Sectors
- 101 - Regulation and Culture of Wine and Distilled Spirits
- 102 - Social Security
- 103 - Physical Therapy and Sports Rehabilitation
- 104 - Social Work with a Specialization in Social Projects
- 105 - Valuation





Doctorate

- 1 - Animal Sciences
- 2 - Agricultural Sciences
- Sciences with a Specialization in:
- 3 - Molecular Biology and Genetic Engineering
- 4 - Biotechnology
- 5 - Medical and Veterinary Entomology
- 6 - Pharmacology and Toxicology
- 7 - Immunology
- 8 - Immunobiology
- 9 - Microbiology
- 10 - Medical Microbiology
- 11 - Applied Microbiology
- 12 - Morphology
- 13 - Natural Resources
- 14 - Nutrition and Food Technology for Aquatic Organisms
- 15 - Sustainable Processes
- 16 - Biomedical Chemistry
- 17 - Environmental Chemistry and Technology
- 18 - Materials Chemistry
- 19 - Nursing Sciences
- 20 - Physical Activity and Sports Sciences
- 21 - Earth Sciences
- 22 - Nutrition and Public Health Sciences
- 23 - Economic Sciences
- 24 - Political Science
- 25 - Social Sciences with a Specialization in Sustainable Development

- 26 - Wildlife Conservation and Sustainability
- 27 - Law with a Specialization in Constitutional Law and Governance
- 28 - Thermal and Renewable Energy
- 29 - Medical and Veterinary Entomology
- Philosophy with a Specialization in:
- 30 - Architecture and Urban Affairs
- 31 - Communication and Educational Innovation
- Engineering with a Specialization in:
- 32 - Environmental Engineering
- 33 - Construction Materials
- 34 - Materials Engineering
- 35 - Electrical Engineering
- 36 - Artificial Intelligence and Optimization
- 37 - Integrated Management and Utilization of Biotic Resources
- 38 - Medicine
- 39 - Alternative Methods of Conflict Resolution
- International Business with a Specialization in:
- 40 - Agribusiness
- 41 - Biotechnology
- 42 - Health Business
- Psychology with a Specialization in:
- 43 - Clinical Psychology
- 44 - Psychology and Education
- 45 - Social Work and Social Policy



Specialties

- 1 - Human Reproductive Biology
- 2 - Quality of Clinical Care
- 3 - Clinical Cardiology
- 4 - General Surgery
- 5 - Conservation, Wildlife and Sustainability
- 6 - Electromobility
- 7 - Intensive Care Nursing
- 8 - Nursing Care of the Child and Adolescent
- 9 - Community and Family Health Nursing
- 10 - Medical and Veterinary Entomology
- 11 - Epidemiology
- 12 - Pediatric Gastroenterology and Nutrition
- 13 - Gastroenterology and Digestive Endoscopy
- 14 - Clinical Geriatrics
- 15 - Nursing Care Management
- 16 - Smart Industry Engineering
- 17 - Integrated Management and Use of Biotic Resources
- 18 - Pediatric Critical Care Medicine
- 19 - Rehabilitation Medicine
- 20 - Emergency Medicine
- 21 - Sports Medicine and Rehabilitation
- 22 - Occupational and Environmental Medicine
- 23 - Clinical Pathology





Assessment of the Integration of Sustainability into the UANL University Curriculum

The purpose of the curriculum assessment is to identify and analyze the incorporation of sustainability-related content within the undergraduate and graduate educational offerings of the Universidad Autónoma de Nuevo León (UANL). This exercise provides insight into the degree to which environmental, social, economic, and institutional responsibility topics are integrated into the learning units that make up the various educational programs offered by the UANL.

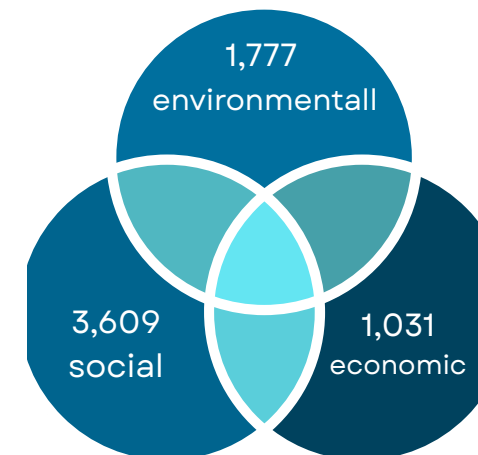


This assessment addresses the need to strengthen the integration of sustainability across academic programs, recognizing the strategic role that higher education institutions play in preparing professionals capable of addressing global challenges related to climate change, natural resource management, the energy transition, biodiversity conservation, and the building of more just and resilient societies.

This analysis aims to determine the number of learning units related to sustainability issues relative to the total number of courses offered in undergraduate and graduate programs, while also identifying the main thematic areas addressed, the levels of curricular integration, and opportunities for academic strengthening in this area.

This assessment serves as a strategic tool for institutional decision-making aimed at consolidating sustainability as a cross-cutting theme in university education, in accordance with the objectives established in the Institutional Development Plan and with national and international commitments regarding sustainable development.

In 2025, the 26 schools that make up the UANL offered an educational program consisting of 99 bachelor's degree programs, in which they taught 8,680 Learning Units (LU), 6,417 of which are related to sustainability.



In 2025, the UANL offered 8,680 Learning Units (LU), of which 6,417 are related to sustainability



Academic Staff Recognition

7,123

UANL professors



1,321

teachers meet the desired profile in the Teacher Professional Development Program (PRODEP, for its acronym in Spanish)



1,456

professors affiliated with the National System of Researchers (SNII, for its acronym in Spanish)

Research and Scientific Outreach in Sustainability



Descarga el libro:

"Restauración ecológica del matorral espinoso tamaulipeco"

POR:

José Manuel Mata Balderas
Eduardo Alanís Rodríguez
Karen Alejandra Cavada Prado
Artura Mora Olivo
Tania Isela Sarmiento Muñoz
Victor Manuel Molina Guerra



1,075

academic and outreach events related to sustainability

12,700

academic publications on sustainability



CURSO
LONBRICOMPOSTA EN LA AGRICULTURA



Digital Education Program

The Digital Education Program at the Universidad Autónoma de Nuevo León (UANL) is an institutional strategy aimed at strengthening teaching and learning processes through the incorporation of digital technologies, innovative tools, and flexible educational models that respond to the new dynamics of professional training and the needs of an increasingly interconnected society.

Through this program, virtual learning environments are promoted that foster equitable access to education, academic flexibility, and the development of digital competencies among students and faculty. The offering of courses, subjects, and programs in a digital format expands educational opportunities, ensuring educational processes with high standards of academic quality, supported by technological platforms, interactive multimedia resources, and ongoing support and advisory services.

In 2025, the UANL, through its Digital Education program, served 50,583 students

Additionally, the Program strengthens educational innovation by integrating online assessment tools, up-to-date digital content, collaborative spaces, and methodologies centered on active learning. These actions contribute to generating a more accessible, dynamic, and inclusive education, capable of adapting to the challenges of the global environment and the demands of the contemporary labor market.

Complementarily, the implementation of digital educational models represents a significant contribution to institutional sustainability by reducing the consumption of resources associated with the operation of physical spaces, such as electricity, water, materials, and transportation. The reduction in transit and the use of on-campus infrastructure helps lower greenhouse gas (GHG) emissions and the university's ecological footprint, strengthening institutional efforts aimed at mitigating the effects of climate change.

In 2025, the Digital Education Program provided academic services to 50,583 students through various virtual platforms and modalities, helping to expand educational coverage and strengthen academic continuity. Furthermore, these actions prevented the emission of approximately 18,249,480 kilograms of CO₂ equivalent, resulting from the reduction in resource consumption and mobility associated with in-person activities.





Institutional virtual platform that facilitates collaboration between students and teachers in the teaching and learning process in school, distance and mixed system. 218,345 active students



It is a platform that allows the creation and management of online learning and teaching spaces adapted to the needs of teachers, students and administrators.



Collaboration and communication tool that allows creating learning teaching spaces in a digital environment that is included in the services available in university e-mail, adapting to UANL teachers and students.



Supports and optimizes department management processes in educational institutions such as School, Human Resources, Finance, among others; to obtain timely and reliable information for decision-making.



It is a collaborative platform for education, designed by educators and developers that allows students to progress in various skills, it can be considered a private social network for learning, as it is quite easy to use.



Online learning system that allows students to choose between different modalities during their university studies, combining in the same semester face-to-face, mixed or online learning units, according to their needs and preferences.



Electronic catalog of libraries consisting of 69 dependencies of the UANL.





INNOVATION AND ENTREPRENEURSHIP PROGRAM

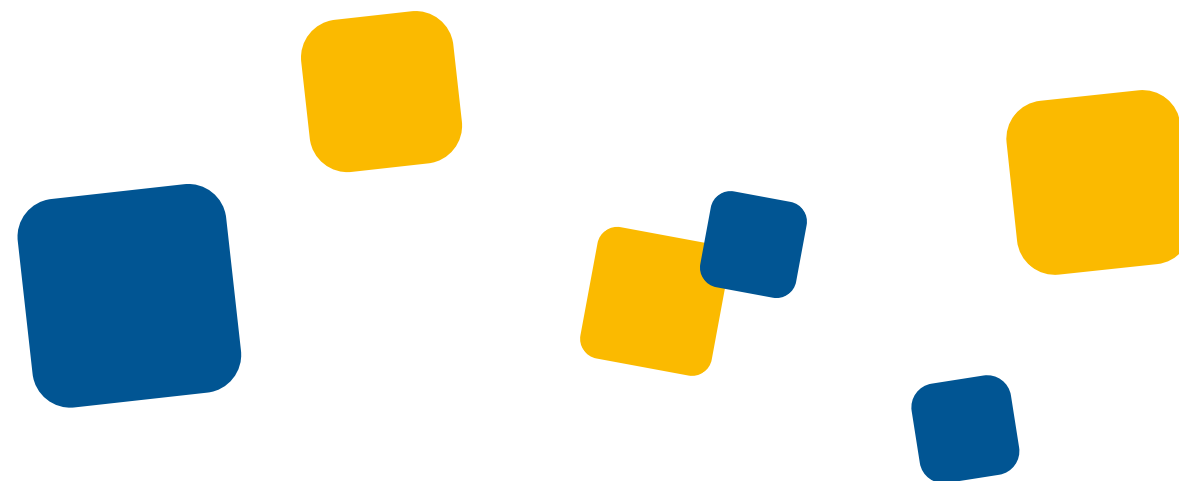
The Innovation and Entrepreneurship Program at the Universidad Autónoma de Nuevo León (UANL) is an institutional strategy aimed at strengthening knowledge generation, technological development, and the creation of innovative solutions with social, economic, and environmental impact. Through this program, the UANL fosters the development of entrepreneurial skills among students, faculty, and researchers, promoting a culture of creativity, leadership, and innovation applied to addressing the major challenges of contemporary society.



32 initiatives aimed at achieving the Sustainable Development Goals

By coordinating academic and scientific activities and fostering links with the public, private, and social sectors, the UANL promotes project incubation, the development of business models, knowledge transfer, and the advancement of technology-based and sustainable initiatives. These actions help strengthen the university's innovation ecosystem, fostering the creation of startups with the potential for regional, national, and international impact.

This program helps consolidate spaces for multidisciplinary collaboration where research, creativity, and business development converge, driving solutions focused on sustainability, digital transformation, competitiveness, and social well-being.



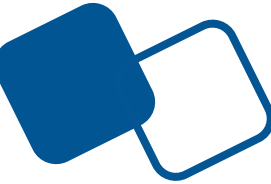


PROJECT	FACILITIES AND SCHOOLS	DESCRIPTION
NeoLife	High School 7	Neolife is an automated device designed to perform neonatal CPR maneuvers accurately, safely, and conveniently. Unlike traditional solutions, Neolife incorporates an Arduino-controlled system and a high-precision servomotor, which replicates chest compressions at the exact frequency and depth recommended by clinical protocols, significantly reducing the margin for human error.
Park Inc	High School 2	Proposes the implementation of a sensor system in a parking lot that allows exclusive access for people with disabilities, preventing the misuse of designated parking spaces.
Guardians of Knowledge	High School 16	Through a Criptex game, this project combines history and logical thinking to improve academic performance, foster motivation to learn, and develop cognitive and emotional skills in a fun and meaningful way.
Nurspeed	Technical Medical High School	The project aims to implement a mechanism that improves the mobility and accessibility of supplies, making them easier for nursing staff to use. The prototype will consist of an auxiliary nursing cart that will be programmed to move throughout the hospital, enabling more efficient transport of supplies, improving organization, reducing physical effort, and minimizing the risk of accidents. The project proposes specific measures to resolve conflicts related to the manual handling of the nursing cart.
SoulX	High School 9	We aim to start a company with the goal of selling more affordable athletic wear for everyone.
OPTIXION	"Álvaro Obregón" Industrial and Technical High School	This project uses a smart system that, through a camera integrated into the frame of 3D-printed glasses, detects the environment and what is happening within it—not only static objects but also movement, such as people, animals, etc.—and, through the use of headphones, notifies the user of what is occurring in the environment.
Roues Artistiques	High School 25	Creation of tables and other furniture made from more than 70% recycled materials sourced from discarded tires.
PlasticPot	High School 12	PlasticPot planters (pots) will be sold to people aged 35 to 65, both men and women. Distribution channels will include physical and online stores; our value proposition is that our planters make a noise when they need water, promoting plant care and environmental stewardship.
Hubble PCS	"Pablo Livas" Industrial School and Technical High School, FIME, School of Public Accounting and Management, and Political Sciences	This project proposes the development of an affordable, energy-efficient mini PC capable of running artificial intelligence models locally, without relying on the internet or robust infrastructure.
Vocare	School of Mechanical and Electrical Engineering, School of Psychology	Vocare offers an immersive and interactive experience that allows high school students to simulate a real day in different professions, facing real tasks, decisions, and challenges of the workplace. Through the use of technologies such as virtual reality and scenario design, young people can explore their interests in a practical and emotional way, helping them make more informed and conscious career decisions.
MINDSLATE	School of Public Accounting and Management	Personalized interface based on neurological profile. Multimodal content (text, images, audio, video). Tools for teachers and parents with progress tracking.





PROJECT	FACILITIES AND SCHOOLS	DESCRIPTION
Impakta	School of Mechanical and Electrical Engineering	Impakta is a digital platform designed to connect people, companies, groups, and organizations with real social causes, enabling the transformation of the intention to help into concrete, measurable, and meaningful actions. It is a comprehensive solution that merges technology, community, and purpose, responding to the need for an accessible, modern, and motivating space where social impact, activism, and citizen collaboration coexist.
Finca Monarca: Aguacate IQF	School of Agronomy	The proposal consists of a fresh avocado product cut into cubes and subjected to individual quick freezing (IQF), accompanied by a natural preservation process that uses only organic ingredients to slow oxidation. All of this is packaged in biodegradable bags that preserve freshness, ensure food safety, and reduce environmental impact, while offering consumers a ready-to-use format.
CONTAIMEX	School of Public Accounting and Management	Contaimex ERP is an innovative technology platform developed to transform business accounting through the integration of artificial intelligence (AI). This advanced system not only automates accounting and administrative processes but also provides accurate financial analysis and pro forma projections based on market trends, inflation rates, interest rates, and other key macroeconomic factors in Mexico. With an intuitive interface, Contaimex ERP aims to reduce the administrative burden on companies, optimizing financial and strategic decision-making.
Whego	School of Visual Arts, School of Public Accounting and Management	Today's society seeks speed, convenience, and making the most of its time. It does not want to waste valuable hours on unnecessary travel or exceed its budget. Whego presents itself as a comprehensive solution that personalizes dining and entertainment recommendations based on each user's budget and preferences. Through smart algorithms and an intuitive interface, the app not only facilitates a more convenient and personalized discovery experience but also boosts the visibility of local businesses and promotes regional economic growth.
Novomex	School of Public Accounting and Administration	A platform that incorporates Artificial Intelligence and Blockchain processes for patent commercialization; through AI models, it fosters connections and open innovation among venture capital firms, corporations, and inventors (entrepreneurs and researchers)—the “Tinder of Innovation”—and, through tokenization processes, streamlines technology transfer.
Rainbow in Your Hands	School of Social Work and Human Development	The Rainbow in Your Hands project offers an innovative and inclusive solution by creating a coloring book designed specifically for children with total visual impairment. This educational material combines the use of tactile reliefs and Braille, allowing children to explore shapes, textures, and colors through touch and sensory recognition.
CamaLeoF	School of Public Accounting and Management	A personal financial management solution that includes real-time tracking of income and expenses with personalized statistics, daily key news to stay ahead and make informed decisions, AI-powered spending projections that foster awareness and goal achievement, and finance courses for all levels that enhance the user's knowledge and education.
Axonyx	School of Medicine	Axonyx offers a unique solution: InmunoChess, an immersive learning platform that merges chess with clinical immunology through scientifically validated gamification strategies. Through an interactive experience, users can only advance on the board by answering immunology questions, turning learning into a game with immediate feedback, positive reinforcement, and spaced repetition.
Nexo-Pad	School of Architecture, School of Mechanical and Electrical Engineering, and School of Physical and Mathematical Sciences	An ergonomic control device designed for use with the left hand is proposed, featuring 21 programmable functions. These include a sliding pad that allows quick access to 9 combinations, a button to access the device's software, and 2 buttons for undo and redo actions; 6 buttons ideal for holding down, and a scroll wheel.
NatuDerm	Faculty of Chemical Sciences	Our product has been tested on people with diabetes who had wounds that had not healed for about 1 to 2 months. Upon application of the product, the wounds heal within 1–2 weeks, with noticeable changes observed from the first days of application.
Paul	School of Public Accounting and Administration	A carpooling platform where people who take the same route every day can share their vehicle safely, affordably, and efficiently. We aim to empower drivers to generate additional income, increase the efficiency of private transportation systems, strengthen communities, and reduce congestion and emissions.





PROJECT	FACILITIES AND SCHOOLS	DESCRIPTION
Psicsport México	School of Sports Management	An emotional fitness program for athletes. A Psicsport Mexico membership gives you access to a community of athletes who want to reach their full potential from an emotional, mental, and nutritional perspective.
Piojolim	High School 7	Easy-to-use rose-scented lice spray containing ingredients such as honey, coconut oil, baby oil, purified water, lavender, apple cider vinegar, permethrin, and propylene glycol; the latter two are active ingredients that do not damage the user’s hair type.
Snacktein	School of Chemical Sciences	Snacktein reinvents traditional snacks by incorporating unconventional proteins, such as cricket and pea protein, into products that are already familiar and culturally accepted by consumers. Currently, our flagship products are spicy peanuts and blueberries.
Homes with Natural Ventilation	School of Architecture	This project offers a solution based on the morphological redesign of homes to improve natural ventilation and reduce indoor temperatures without relying on the intensive use of mechanical systems. The proposal focuses on modifying key elements such as walls, ceilings, and backyards, using areas that promote airflow and dissipate accumulated heat.
TEDDY HEALTHY	School of Social Work and Human Development	Teddy Healthy is a company dedicated to the mental health of its clients. For this reason, it specializes in support products for anxiety crises. It offers a kit consisting of a talking teddy bear that plays a series of steps to calm the person in crisis, as well as a student planner with daily tips and motivational phrases that allows the person to express how they feel each day.
SympIA	School of Medicine	SympIA (an acronym for Symptom Prediction Artificial Intelligence) is an intelligent medical platform developed to assist in the early detection of diseases, improving clinical care from the very first interaction with the patient. Using artificial intelligence and connections to certified, up-to-date medical databases, SympIA is capable of identifying signs and symptoms with clinical precision, adapting to both patients and healthcare professionals.
Glucare +	School of Public Accounting and Administration	App for people with diabetes featuring telemedicine, glucose monitoring, and personalized advice. It includes online consultations, medication reminders, and healthy eating recommendations, with subscription plans. Additionally, the app for people with diabetes will utilize telemedicine, AI chatbots, and Bluetooth BLE glucose sensors
Tézcatl	School of Public Health and Nutrition	The Tézcatl project offers an innovative, natural, and sustainable solution to the problem of gastritis and related digestive disorders through the development of a functional nutraceutical gel in single-dose form, formulated with plant-based bioactive ingredients that are scientifically proven to be effective in modulating inflammatory, oxidative, and microbial processes in the digestive system.
TIERRA Y SALTO	School of Dentistry	We offer tortillas made with grasshopper flour combined with a little oat flour or a little nixtamalized corn, water, salt, and a little lemon juice.
Organ Opportunity	School of Medicine	The device is an instrument for transporting and perfusing the kidney. It must be small, low-cost, easy to transport, and capable of real-time operational control. It must consist of an external container that completely isolates the system from the environment. Inside the container there will be three compartments: a refrigerant storage box, a platform for the electronic components involved in the control system, and the disposable perfusion circuit.





STUDENT PARTICIPATION

Student participation in the sustainability programs promoted by the Universidad Autónoma de Nuevo León (UANL) is a key factor in building a socially responsible university community committed to creating a sustainable future. Through their involvement in environmental, social, and economic initiatives, students strengthen not only their academic education but also their personal and professional development, becoming agents of change capable of addressing global challenges associated with climate change, biodiversity loss, pollution, and social inequalities.

Student participation represents a strategy that combines the benefits of volunteering with the principles of a well-rounded university education. Through activities related to waste reduction, efficient use of energy and water, ecosystem conservation, environmental restoration, and the promotion of sustainable lifestyles, students acquire practical knowledge and develop key skills such as leadership, critical thinking, collaborative work, effective communication, and problem-solving. This learning strengthens their ability to integrate sustainability into their daily lives and future professional practice.



228
student
organizations
focused on
sustainability issues



In recent years, the UANL has seen significant growth in the number of student organizations, as well as an increase in the participation of young people interested in promoting actions with a positive impact both on and off campus. This strengthening of the student movement for sustainability has helped consolidate a network of youth leadership committed to the three dimensions of sustainable development: social, economic, and environmental. Student organizations, university federations, and student societies develop awareness campaigns, educational activities, community events, and intervention projects that help raise awareness and foster an environmental culture among the university community and society at large.





The initiatives driven by students also generate a significant multiplier effect, as the knowledge and best practices acquired extend beyond the university setting and are replicated in homes, communities, and social spaces. In this way, student participation strengthens the UANL's capacity to positively influence society's transformation toward more sustainable development models.



One of the elements that has strengthened student participation is the cross-cutting integration of sustainability into the UANL's educational offerings, promoting the training of professionals with social and environmental responsibility. This educational approach allows students to understand the complexity of global challenges and actively participate in building a more sustainable society.

Complementarily, the University Volunteer Program, coordinated by the Head Office of Social Service and Internships, has strengthened student participation in social and environmental projects developed in collaboration with communities, civil society organizations, and public institutions. These experiences help foster social awareness, a sense of shared responsibility, and civic engagement among participants, promoting the development of professionals who are sensitive to the needs of their surroundings and committed to the collective well-being.

Student participation has established itself as one of the university's greatest institutional strengths, enabling UANL to position itself as a national and international leader in university sustainability.

The leadership, commitment, and organizational skills of the students have contributed significantly to the strengthening of institutional sustainability programs and to the recognition that the UANL has earned in various international indicators and rankings. This collective effort demonstrates that the training of a new generation of professionals committed to sustainability represents a strategic element in advancing toward a more just, inclusive, and environmentally responsible society.





Student Participation Activities to Promote Sustainability in 2025

Activity	Date	Student Participation
UANL Forestry Assessment	January 21, 2025	195
Online Conference “Youth Climate Activism”	February 6, 2025	120
"Dialogues on Sustainable Cities and Communities"	February 25, 2025	44
Online Conference "Social Sustainability"	February 27, 2025	186
International Course "Training Leaders to Promote Sustainability" (Session 1)	March 5, 2025	803
Online Conference "The Vaccination System and Its Sustainable Benefits"	March 6, 2025	143
International Course "Training Leaders to Promote Sustainability" (Session 2)	April 12, 2025	637
Environmental Fair	March 14, 2025	330
International Course "Training Leaders to Promote Sustainability" (Session 3)	March 19, 2025	617
Regular Meeting of Student Associations Focused on Sustainability Issues	March 21, 2025	94





Activity	Date	Student Participation
"In the Spotlight of Sustainability" Photography Contest with the theme "Wildlife on University Campuses"	March 24 to October 17, 2025	102
"Dialogues on Sustainable Cities and Communities"	March 25, 2025	38
International Course "Training Leaders to Promote Sustainability" (Session 4)	March 26, 2025	481
Online Conference "Modernization Alternatives in Drinking Water Supply"	March 27, 2025	275
UANL Forestry Assessment	March 28, 2025	25
International Course "Training Leaders to Promote Sustainability" (Session 5)	April 2, 2025	456
Online Conference "The Start, Development, and Consolidation of a Student Association's Growth"	April 3, 2025	165
UANL Forestry Assessment	April 6, 2025	8
International Course "Training Leaders to Promote Sustainability" (Session 6)	April 9, 2025	704
Dialogues on Sustainable Cities and Communities, Session 3: Resilient Cities	April 29, 2025	53
Online Conference "Strategies to Minimize Food Waste in Production, Distribution, and Consumption"	April 30, 2025	239





In 2025, the UANL organized
370
activities to promote sustainability with student participation



31,348
participants in activities promoting sustainability issues

Activity	Date	Student Participation
Online conference “Food security and sustainability: toward achieving the Zero Hunger goal”	May 8, 2025	207
Online conference “High School No. 3 Sustainable Innovation Club”	May 29, 2025	224
Online conference "Plastic Waste and Its Effects on Human Health"	June 2, 2025	244
Online Workshop "Principles of Photography: Light and Composition"	June 3, 2025	192
Environmental Monitoring of UANL Urban Campuses	June 4, 2025	4
“Bird Watchers” Workshop	June 4, 2025	25
Online Lecture “The Geographic Imprint on the Regional Development of Vulnerable Environments”	June 4, 2025	278
"Dialogues on Sustainable Cities and Communities"	June 4, 2025	56
Environmental Fair	June 5, 2025	300
Online Workshop “My Neighbor the Bear: Learning to Coexist”	June 6, 2025	137
Online conference “Emotional consequences of the environmental crisis in Monterrey”	June 6, 2025	208



Activity	Date	Student Participation
Environmental Monitoring of UANL's Urban Campuses	June 16, 2025	6
Environmental Monitoring of UANL Urban Campuses	June 18, 2025	5
Online Conference "The City and Sustainable Development"	June 26, 2025	69
Environmental Monitoring of UANL's Urban Campuses	June 28, 2025	6
Environmental Monitoring of UANL Urban Campuses	July 13, 2025	3
Environmental Monitoring of UANL's Urban Campuses	July 13, 2025	2
Environmental Monitoring of UANL's Urban Campuses	July 19, 2025	11
Environmental Monitoring of UANL Urban Campuses	July 30, 2025	5
Online Conference "Academic Performance and Mental Health in College Students"	August 7, 2025	184
UANL Forestry Assessment	August 15, 2025	30
Wildlife Monitoring Day in Natural Environments in Urban Areas	August 16, 2025	36





Activity	Date	Student Participation
Environmental Monitoring of UANL Urban Campuses	August 17, 2025	3
Environmental Monitoring of UANL's Urban Campuses	August 17, 2025	2
Environmental Monitoring of UANL's Urban Campuses	August 24, 2025	4
Online Conference "Environmental Social Movements"	August 28, 2025	231
Workshop on the Restoration of Natural Environments in Urban Areas at the "Río La Silla" National Park	August 29, 2025	300
Environmental Monitoring of the UANL's Urban Campuses	August 31, 2025	9
International Course "Training Leaders to Promote Sustainability" (Session 1)	September 1, 2025	236
Online Conference "How to Destroy the Planet in 10 Thoughts (and How to Start Changing)"	September 4, 2025	113
International Course "Training Leaders to Promote Sustainability" (Session 2)	September 8, 2025	311
Environmental Monitoring of UANL Urban Campuses	September 7, 2025	6
Environmental Monitoring of UANL's Urban Campuses	September 7, 2025	3
Forest Fire Conference (Prevention, Management, and Restoration)	September 10, 2025	28





Activity	Date	Student Participation
Environmental Monitoring of UANL's Urban Campuses	September 14, 2025	2
International Course "Training Leaders to Promote Sustainability" (Session 3)	September 15, 2025	562
Monitoring of terrestrial and aquatic wildlife in the Jardines del Canada Wetland	September 16, 2025	37
Environmental Monitoring of the UANL Urban Campuses	September 21, 2025	8
International Course "Training Leaders to Promote Sustainability" (Session 4)	September 22, 2025	293
Online Conference "Monitoring Natural Environments in Urban Areas"	September 25, 2025	194
International Course "Training Leaders to Promote Sustainability" (Session 5)	September 29, 2025	301
Online Conference "Vaping Among Adolescents"	October 2, 2025	131
Environmental Monitoring Day on University Campuses	October 5, 2025	11
Environmental Monitoring Day on University Campuses	October 12, 2025	3
Environmental Monitoring Day on University Campuses	October 12, 2025	3



Activity	Date	Student Participation
International Seminar “Impact of Climate Change on Air Quality in the Monterrey Metropolitan Area and Its Effects on Public Health”	October 17, 2025	300
Environmental Monitoring Day on University Campuses	October 19, 2025	16
Online Conference "Mental Health and Academic Performance: An Econometric Approach to Human Capital"	October 30, 2025	119
UANL Forestry Assessment	November 4, 2025	35
Online Conference “The Importance of Wetland Monitoring and Different Conservation Alternatives”	November 6, 2025	141
Environmental Monitoring Day on University Campuses	November 9, 2025	2
Environmental Monitoring Day on College Campuses	November 9, 2025	2
Environmental Fair	November 14, 2025	130
"Bird Watching" Workshop	November 14, 2025	80
"Monitoring Native Flora in the La Silla River National Protected Area" Workshop	November 14, 2025	80





Activity	Date	Student Participation
Environmental Monitoring Day at University Campuses	November 23, 2025	9
Online Conference "Art and Sustainability: From Land Art to Eco-Art and Eco-Crafts"	November 27, 2025	146
Environmental Monitoring Day on University Campuses	November 30, 2025	2
Environmental Monitoring Day on University Campuses	December 14, 2025	2
Environmental Monitoring Day on University Campuses	December 15, 2025	4
Environmental Monitoring Day on University Campuses	December 18, 2025	11
Environmental Monitoring Day on University Campuses	December 28, 2025	2
Total		11,819



UNIVERSIDAD AUTÓNOMA DE NUEVO LEÓN

ANNUAL
SUSTAINABILITY
REPORT
2025





Partnerships to Achieve the Goals

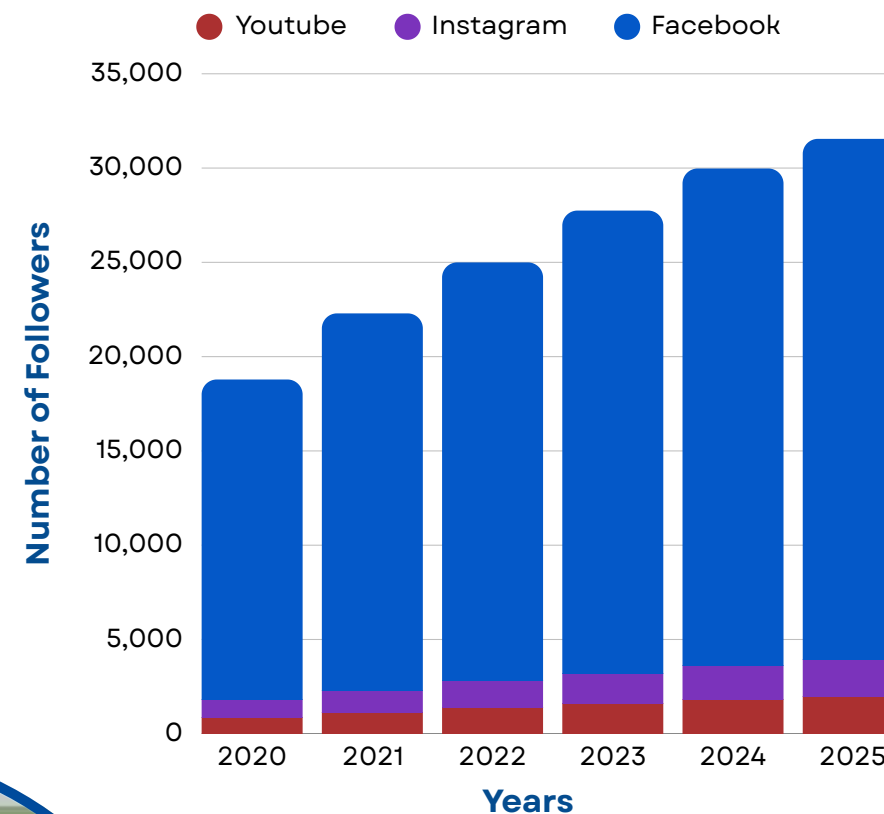
The communication and outreach program for sustainability (Sustentable UANL), promoted by the Universidad Autónoma de Nuevo León (UANL) through the Project Development Office of the Sustainability Department, has become an important tool for promoting a culture of sustainability.

Its goal is not only to inform but, above all, to raise awareness among students and academic and administrative staff so that they assume their rightful role as promoters of the transition toward sustainability.

Through campaigns, digital content, and informational activities, the program seeks to connect sustainability issues with the daily activities carried out by members of the university community, with the aim of integrating this concept as part of the UANL's institutional identity.



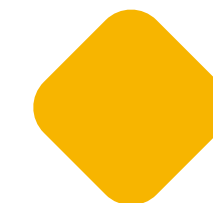
UANL Sustainable Followers



The program has a system for measuring the impact of the communication initiatives implemented. Thus, every message disseminated and every activity carried out is evaluated in terms of its reach and impact on the awareness and habits of the university community and the society with which it interacts. This strengthens confidence both within and outside the UANL regarding the program's relevance and prevents sustainability from being perceived solely as a rhetorical concept lacking transformative power.



In 2025, nearly **3,000** posts were published to promote sustainability, reaching **1.19** million people on social media and the website





To this date, significant progress has been made in integrating sustainability into the organizational culture through the implementation of a strategy aimed at generating, in the first stage, awareness; subsequently, knowledge; then, ownership; and finally, action. This fulfills the objective of ensuring that students, faculty, and staff not only understand issues related to sustainability but also adopt them and reflect them in their daily decisions and behaviors.

The operation of the UANL's Communication and Outreach Program for Sustainability has strengthened the UANL's institutional positioning through the digital strategy known as UANLSustentable, which comprises the official sustainability website (sds.uanl.mx), social media (Facebook, Instagram, and YouTube), and various multimedia platforms.

During the year, more than 2,859 posts were published, reaching over 1.19 million people. Additionally, 188 audiovisual materials were produced, and 81 academic and scientific events were livestreamed, collectively attracting more than 514,300 viewers interested in topics such as the circular economy, climate change, the water crisis, air quality, responsible consumption, and inclusion.

In 2025, more than **81** academic and scientific events related to sustainability issues were streamed live, reaching an audience of over **500,000**





Countries Visiting the sds.uanl.mx Website



In 2025, UANLSustentable published more than 2,859 posts, reaching over 1.19 million people. In addition, 188 audiovisual pieces were produced, and 81 academic and scientific events were livestreamed, collectively attracting more than 514,300 viewers interested in topics such as the circular economy, climate change, the water crisis, air quality, responsible consumption, and inclusion.

The program's digital presence helped strengthen ties not only with the university community but also with a wide range of audiences in the state of Nuevo León, throughout Mexico, and in more than 100 countries, including China, Russia, the United States, Singapore, Argentina, Colombia, New Zealand, India, Saudi Arabia, Australia, Algeria, and Nigeria, among others. This international reach expanded the UANL's institutional scope and established the University as a leader in promoting sustainability at the national and international levels.

Complementarily, part of the content generated was aimed at encouraging student participation through spaces for reflection and proposal, where students identified issues in their environment and proposed solutions with a sustainable focus. This promoted their transition from a passive audience to active agents of change in favor of sustainability.





◆ Art and Sustainability

The Universidad Autónoma de Nuevo León (UANL) promotes various initiatives aimed at advancing sustainability through art and cultural expressions, integrating two deeply rooted elements within the university community: culture and environmental responsibility. Through this strategy, the UANL seeks to raise awareness among students, faculty, and society at large about the importance of environmental conservation and the responsible use of natural resources, using art as a means of reflection, communication, and social transformation.

Through its high schools, schools, and cultural spaces, the UANL organizes activities that combine artistic creativity with environmental education, encouraging the creation of works and projects with a sustainable focus. Among these initiatives, the creation of visual, sculptural, and audiovisual artworks made from recycled or reused materials stands out, promoting the responsible use of resources and the reduction of waste. These artistic expressions convey messages related to biodiversity protection, comprehensive waste management, climate change, and ecosystem conservation.





Likewise, the UANL organizes workshops, exhibitions, contests, and cultural activities that strengthen student participation and environmental awareness, creating spaces for dialogue and learning where artistic talent, innovation, and social commitment converge. These initiatives allow students to develop new forms of creative expression while reflecting on current environmental challenges and their role in building a more sustainable society.



Among the most representative initiatives is the “En la Mira de la Sustentabilidad” photography contest, promoted by the Sustainability Department through the Project Development Office. This contest has established itself as a space for participation and environmental awareness that encourages the university community to document issues and actions related to sustainability. In 2025, the tenth edition of the contest was held under the theme “Wildlife on University Campuses,” while the photography exhibition featuring the winning works was displayed at seven university venues, reaching an audience of more than 4,000 people.



The impact of these initiatives is reflected in the university community’s growing interest in incorporating sustainability into cultural and creative processes, thereby strengthening a holistic vision in which art serves as a tool for education and social awareness.





Guidelines

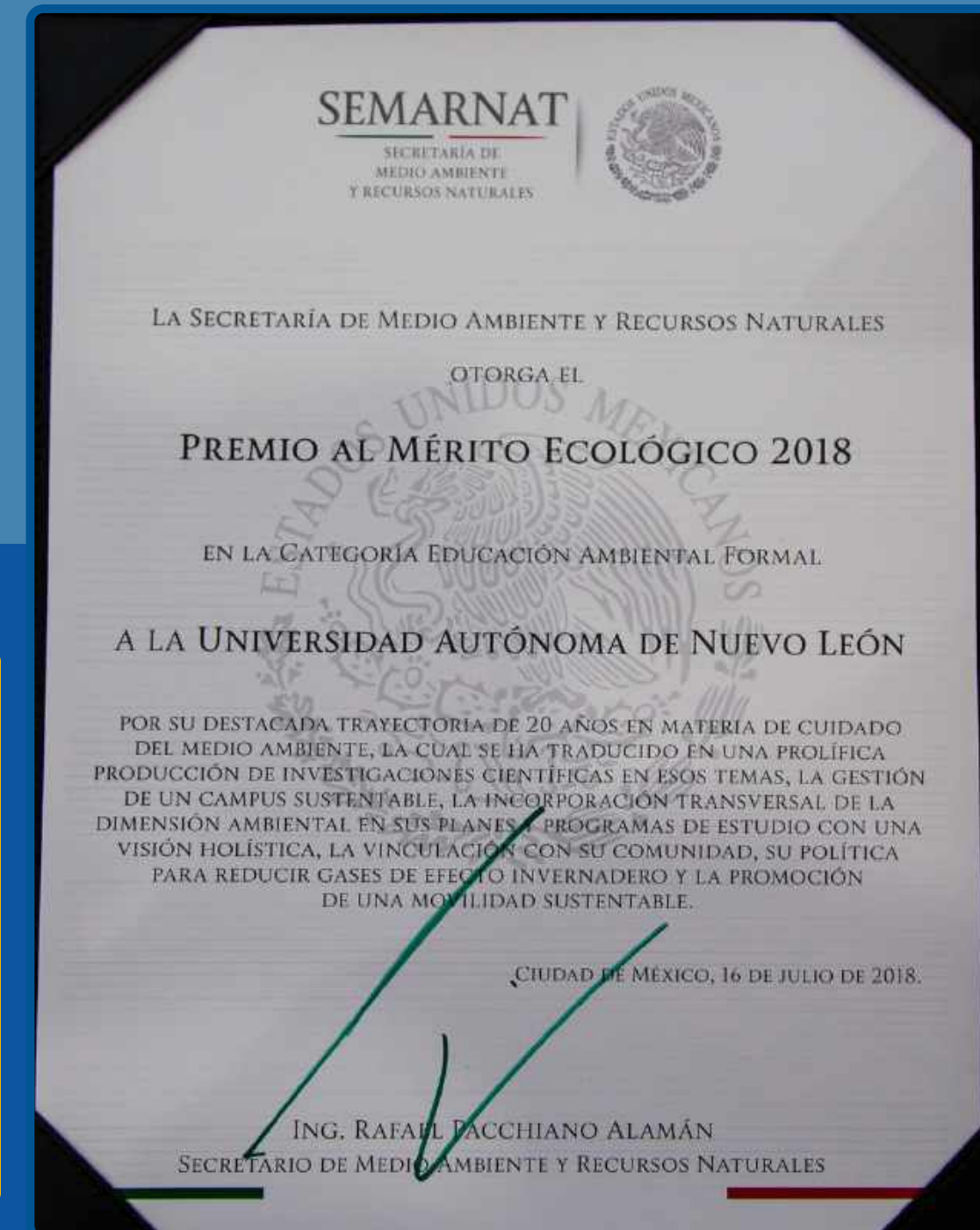
With the aim of fostering changes in attitude and practice in the activities carried out by members of the university community in the field of environmental management, efficient use of energy and water, and responsible consumption, the Universidad Autónoma de Nuevo León, through the Sustainability Department, has developed and published the following guidelines applicable to all university departments:

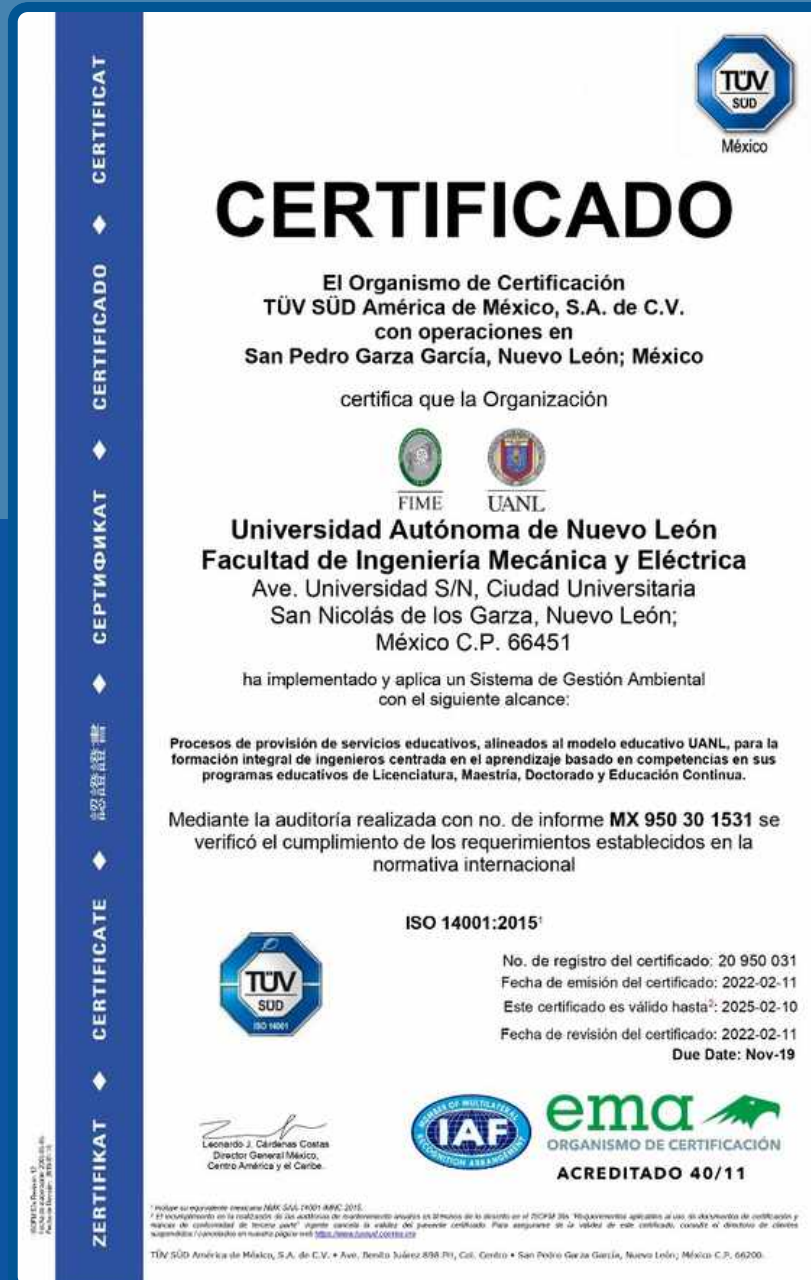
- Technical guidelines for the proper thermal insulation of buildings.
- Technical guidelines for green building.
- Technical guidelines for the efficient use of water for irrigation.
- Technical guidelines for sustainable mobility.
- Technical guidelines for efficient water use.
- Regulations for the procurement of air conditioning equipment.
- Technical guidelines for the use of drinking water and treated wastewater.
- Sustainability guide for workshops and laboratories.
- Technical guidelines for classroom lighting equipment.
- Technical guidelines for the procurement of products intended to improve the efficiency of HVAC equipment.
- Technical guideline for the procurement of goods and services through green purchasing practices.
- Technical guidelines for operational safety.
- Technical guidelines for responsible consumption.
- Technical guidelines for the handling and management of urban waste with recyclable and special-handling characteristics.
- Technical guidelines for the handling and management of hazardous waste.
- Institutional policy for the incorporation of good sustainability practices sustainability at the UANL.
- Technical guidelines for responsible consumption.





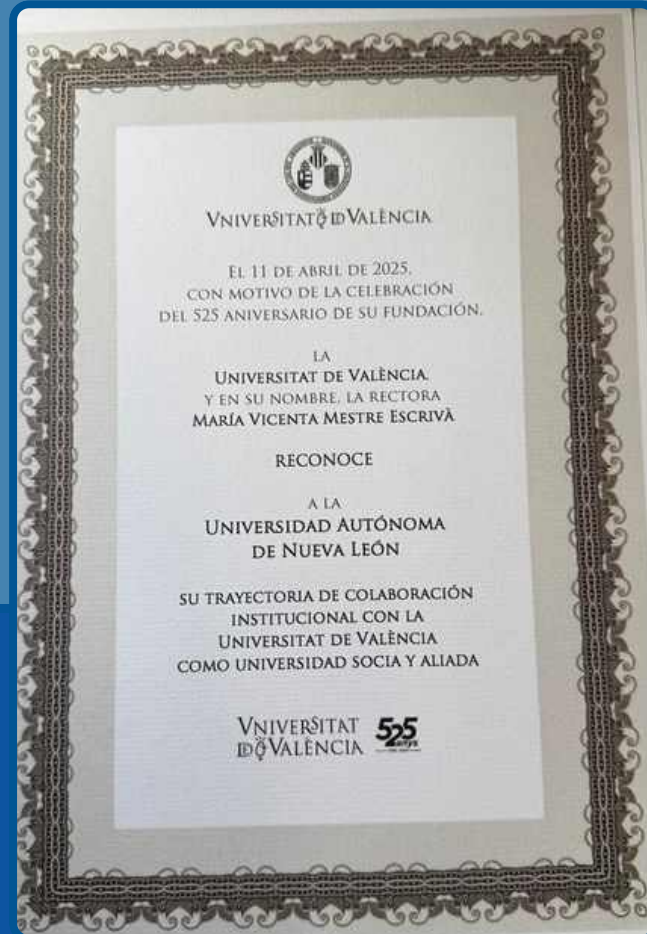
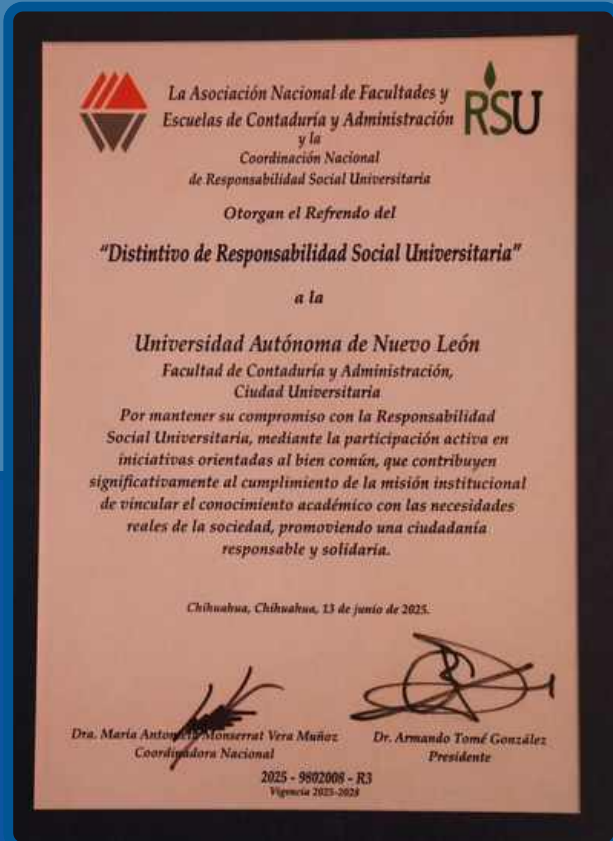
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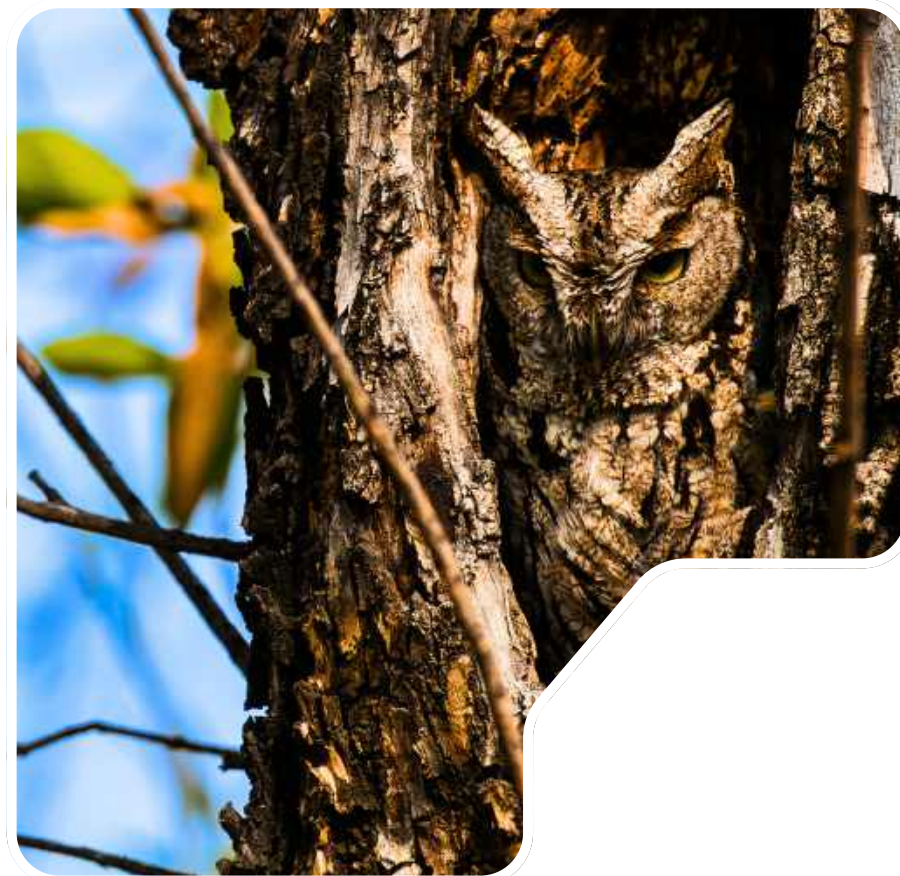
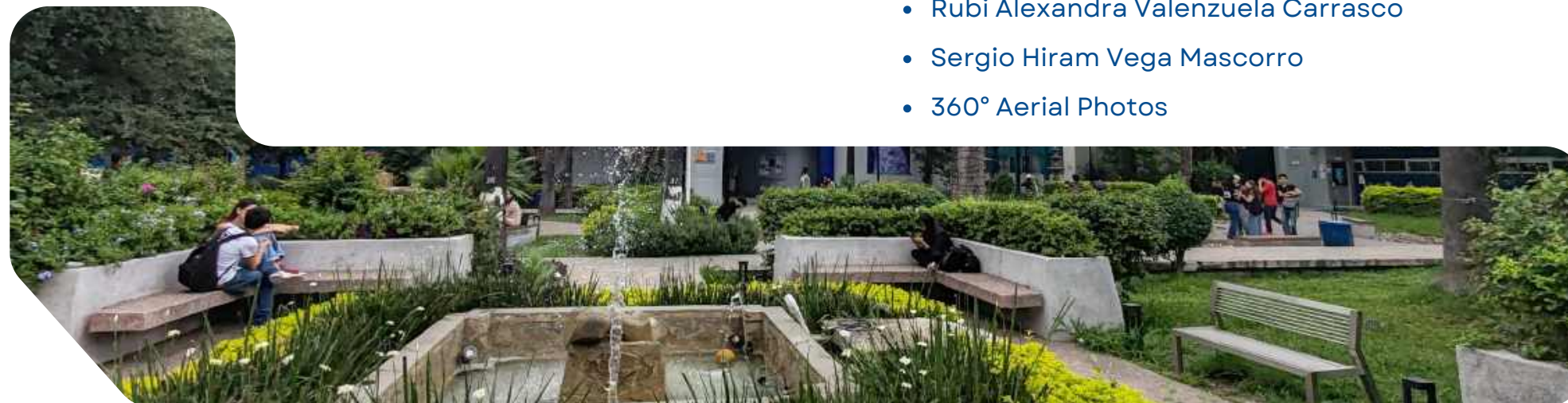


PHOTO CREDITS

- UANL Photo Archive
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- UANL HUB
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