

AASTMT

ESTABLISHED LAB UNIT PORTFOLIO

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1. AASTMT ESTABLISHED LAB UNIT PORTFOLIO: ENVIRONMENTAL DESIGN LAB

This report offers a comprehensive overview of the Environmental Design Lab at the AASTMT. The lab initially inaugurated in 2022, as part of a previous Erasmus+ Project entitled “UPGRADE”, as it was established as a Sustainable Urban Mobility Lab. It was then upgraded in 2025, and reinaugurated as a more comprehensive Environmental Design Lab, through the Pro-Green Labs project.

1.1. Aims, Mission Statement and Scope of Interests

The **Environmental Design Lab** is based at the Architectural Engineering and Environmental Design Department, at the AASTMT. It is a research and academic services laboratory, adopting and deploying urban design and community design methodologies and approaches in addressing; research studies, projects, and urban issues, problems and challenges – this enables the lab to effectively contributing to and enhancing; urban design and community design knowledge and practices and to integrate research studies, projects, practice, and products, into architectural education and learning process, for the undergraduate and postgraduate levels at the Department, the Faculty and the University.

AIMS: The lab aims at fostering multisectoral collaboration between engaging and collaborating with; undergraduate and postgraduate students, researchers, academic and professional partners, local communities, local authorities and international partners to address and investigate issues related to cities and urban areas.

MISSION STATEMENT: In order to achieve this vision, the EDL adopts a 5-year plan, which extends beyond the lifetime of PGL. The plan comprises 3 phases, each with a different category of stakeholders, in order to capitalize on the role of the EDL as an effective and efficient lab unit and data centre for environmental urban and architectural design in Egypt. The 3 phases of implementation are outlined in Figure 1.

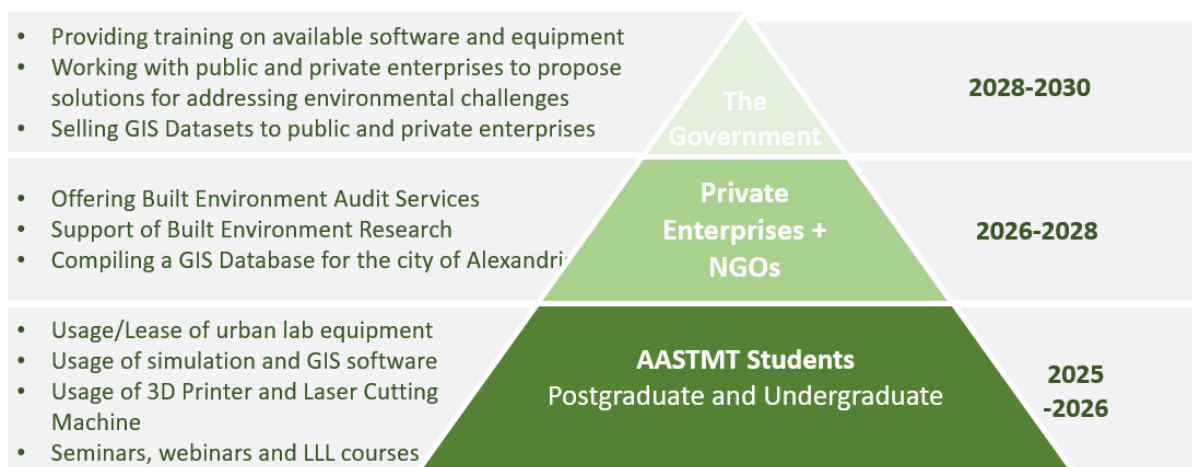


Figure 1: The 5-year long strategic plan of the EDL

SCOPE OF INTEREST: The EDL aims to be a centre for fostering innovative environmental design thinking, to be implemented in Architecture, Urban Planning and Design, and Interior Design, through fostering evidence-based design and providing students and researchers with various tools and equipment for data gathering, data synthesis and simulation. Research and studies relevant to the aims and objectives of the EDL, include the following topics:

- Sustainable Architecture
- Sustainable Urban Planning and Design
- Climate-responsive Architecture, Urban Design and Interior Design
- Sustainable Urban Mobility Planning
- Smart and Intelligent Urbanism
- Human-centric approaches to Architecture, Urban Planning and Design

1.2. Hard Capacities of the Environmental Design Lab

This section outlines the **hard capacities** of the **Environmental Design Lab** at AASTMT. These include physical infrastructure, equipment, and software assets that support the Lab's operations, research activities, and academic engagement.

1.2.1. Venue

The **Environmental Design Lab** is located at the Ground floor of the Architectural Engineering and Environmental Design Department, Faculty of Engineering and Technology, AASTMT. It is strategically located at a prime, accessible location for students, staff members, researchers, and visitors from outside the department. Its proximity to the department's main auditorium, exhibition, and library emphasizes the importance of the lab as a research and academic hub serving a wide range of stakeholders.

Figure 2: Environmental Design Lab [EDL], Ground Floor, Architectural Engineering and Environmental Design Department, AASTMT



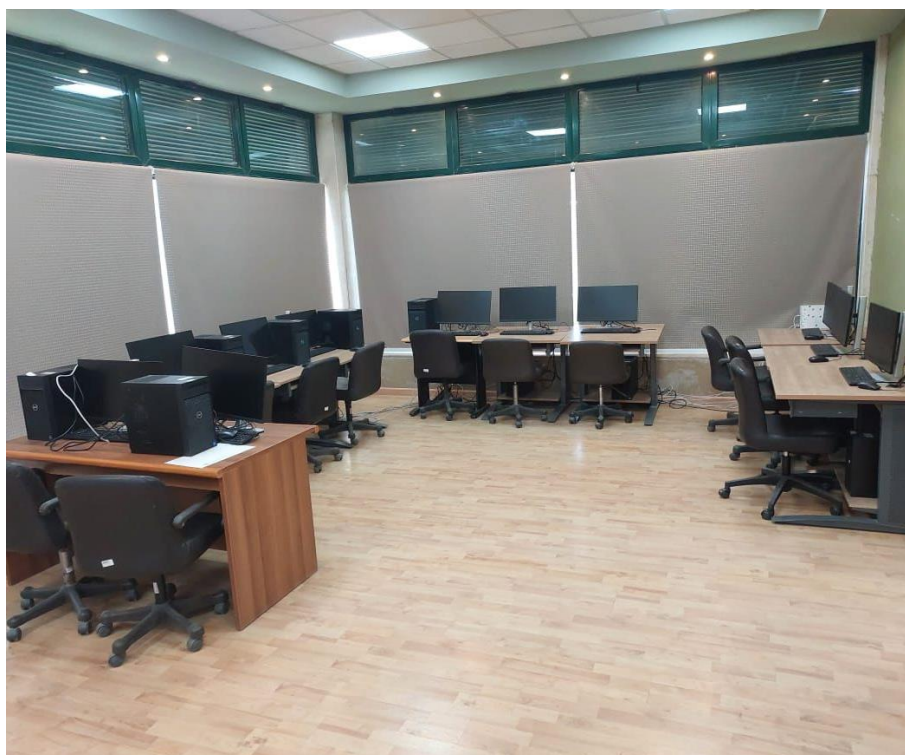


Figure 3: Current State of the EDL at AASTMT

1.2.2. List of Equipment and Software

1.2.2.1. Urban Mobility Planning Equipment and Software

These items were purchased and installed through the Erasmus+ project UPGRADE.



Figure 4: Urban Mobility Planning Equipment at the EDL, AASTMT



PTV Traffic Simulation Package

- PTV Vissum
- PTV Vissim
- PTV Viswalk



ARC GIS



Esri City Engine



Q GIS

Figure 5: Urban Mobility Planning Software at the EDL, AASTMT

1.2.2.2. PCs + 3D Modeling Equipment

These items were purchased and installed through Pro-Green Labs.

Elgoo Neptune- 3D Printer



AirCircle 7070- Laser Cutting Machine



Dell- 17 Desktop Pcs



Figure 6: PCs and 3D Modeling Equipment at the EDL, AASTMT

1.2.2.3. Environmental Monitoring Equipment [Purchase in progress]

- Weather Station
- Sound-recorder
- Luxometer

1.2.2.4. Digital Documentation Tools [Purchase in progress]

- Laser scanner
- 3D Camera
- VR oculus

1.3. Soft Capacities of the Environmental Design Lab

This section describes the **soft capacities** of the Environmental Design Lab, in terms of human resources and organizational structure. These capacities are essential for sustaining the Lab's operations, implementing projects, and engaging with academic, governmental, and community stakeholders.

1.3.1. Administrative Hierarchy of Staff

1.3.1.1. The EDL Academic Committee:

This committee is responsible for initiating, guiding, and conducting research that utilizes the capabilities of the EDL. It is also responsible for fostering engagement in international and collaborative projects and attainment of funds for expanding the facilities of the EDL. It comprises 3 faculty members who work collaboratively to achieve the EDL'S mission and vision.

1.3.1.2. Administrative Staff:

This group handles the administrative functions that support the lab's operations, in terms of keeping documents, managing budgets, and coordinating events.

1.3.1.3. Technical Staff:

One staff member is responsible for the technical support of the lab, in terms of curation and maintenance of equipment and software.

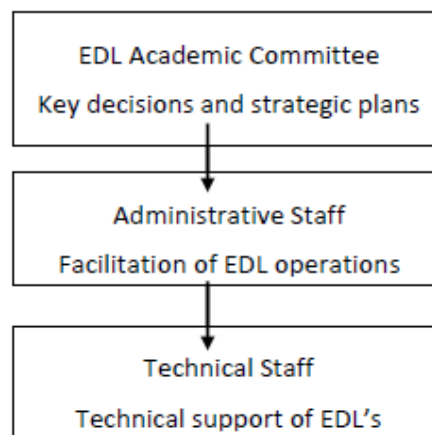


Figure 7: The Organisational Structure and roles of staff of the EDL at AASTMT

1.3.2. Communication Channels and Contacts

The EDL is currently establishing its online presence through social media platforms. These platforms serve as a vital tool for sharing the lab's activities, events, research, and projects related to environmental design within the 3 fields studies throughout the department

[architectural design, urban design, and interior design]. Through these platforms, the EDL aims to reach out to a broader audience, including students, researchers, professionals, and the community, in order to generate opportunities for collaboration to address relevant pressing challenges within the city of Alexandria.

ENVIRONMENTAL DESIGN LAB LINKS:

Facebook: <https://www.facebook.com/share/1AT172QFhQ/>

Instagram:

https://www.instagram.com/environmental_design_lab?igsh=dnhhcWFrem1vdzB4

CONTACT PERSONS:

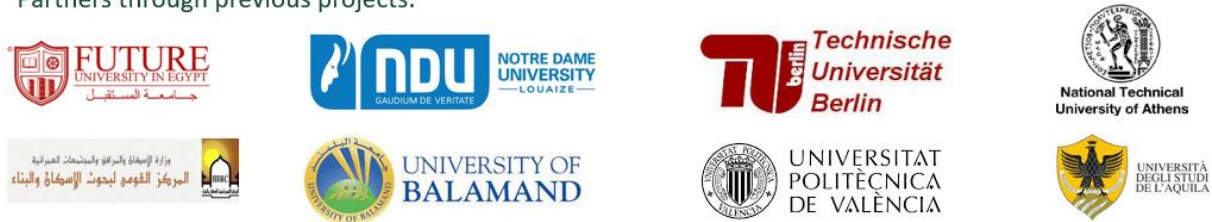
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1.3.3. Partners (Academic and Non-Academic)

Partners through previous projects:



Partners through PGL:



Non-Academic Partners:



Figure 8: Academic and non-academic partners of the EDL, AASTMT

In addition to the official project partners, the Environmental Design Lab has actively collaborated with a range of academic and non-academic institutions that have enriched its research, outreach, and impact.

Academic Partners:

The lab has established academic partnerships with several esteemed institutions from multiple European and middle-eastern countries. These partnerships were established through previous Erasmus+ Projects and are still ongoing as collaborative research between the partners extends beyond the lifetime of the projects. This has immensely enriched the academic, research and training content that the EDL lab offers to students, staff and the community.

Non-Academic Partners:

Non-academic partners have been an essential part of establishing the EDL at the very early stages, as the team's collaboration with Transport for Cairo has helped generate multiple opportunities for collaborative research and training projects. It has also been a seminal part of the selection process of the urban mobility equipment and software programs that have initiated the former SUMP lab.

1.3.4.Strategies for sustainability

This section describes the urban lab financial and governance strategies, and the framework created to ensure that both financial and governance efforts support long term sustainability

- Financial Sustainability Strategies

The EDL's financial sustainability strategy begins with a focus on diversifying funding sources. In addition to the services provided by the EDL, which will represent the greater majority of funding for the lab's operations, the EDL also aims to pursue the support of the AASTMT and of private and public enterprises, as well as international research grants for funding both foundational and future activities of the lab. By aligning the lab's research objectives with current Sustainable Development Goals, which are prioritized within the institution, across the nation, and internationally, the EDL increases its potential eligibility for international and national funding opportunities.

To plan and support these efforts, the EDL plans to develop a robust internal financial management system. Thus, the EDL works collaboratively with administrative board members of the Engineering Projects Consultancy Center at AASTMT.

- Governance Sustainability Strategies

The Environmental Design Lab (EDL) at AASTMT ensures governance sustainability through a clearly defined organizational structure, a phased development plan, and strong stakeholder engagement. The lab is managed by an academic committee supported by administrative and technical staff, ensuring efficient operation and long-term leadership. Its five-year phased implementation strategy allows for gradual growth, aligning governance with expanding roles and responsibilities. Additionally, the EDL integrates with academic programs and actively collaborates with local and international partners, supported by ongoing evaluation and feedback mechanisms that enable responsive and resilient governance.

1.4. Integration of Teaching and Scientific Research within Lab Activities

The lab is accessible to all courses, students and all teaching staff within the Faculty of Engineering and Technology. Additionally, the lab fosters cross-institutional collaboration with researchers, enterprises and the public sector in order to accentuate its role as a hub for research and academia within the city of Alexandria.

The Environmental Design Lab is firmly rooted in the belief that scientific research and academic instruction must evolve together to address complex environmental and urban challenges. By embedding lab-based research activities within both undergraduate and postgraduate curricula, the EDL fosters an experiential learning environment where students actively engage in real-world investigations. Faculty members are encouraged to align their research agendas with ongoing teaching modules, creating opportunities for students to contribute to live projects, data collection, and field analysis. This synergy enhances critical thinking, promotes evidence-based design practices, and ensures that academic content remains relevant and responsive to contemporary issues. The integration also empowers students to co-produce knowledge alongside researchers and community stakeholders, strengthening the lab's role as a collaborative platform for innovation, sustainability, and interdisciplinary inquiry.