

## Campus Land Sustainability Change Detection Report for SDG 15.3.1: AASTMT 2022–2025

### 1. Introduction

SDG Indicator 15.3.1 measures the *proportion of degraded land* and evaluates progress toward Land Degradation Neutrality (LDN). For a university, this indicator is typically assessed through:

- Monitoring land-cover change,
- Identifying soil loss or conversion to non-productive land,
- Evaluating increased vegetation or sustainable land-use improvements,
- Tracking expansions in green areas, infrastructure, and sustainable development interventions.

This report analyzes AASTMT’s coastal campus (Abu Qir) between 2022 and 2025 using the provided satellite images.

### 2. Data Sources

- **Image 1 (2022)** – satellite view of AASTMT campus, showing baseline land-cover distribution.
- **Image 2 (2025)** – updated satellite view reflecting changes after 3 years.



**Fig. 1.** Both images outline the campus boundary for consistent comparison of the year (A) 2022 and (B) 2025

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### 3. Observed Land Use and Cover Changes (2022–2025)

#### 3.1. Built-Up Area

- Increase in built-up structures is visible in the eastern and northeastern sections of the campus.
- Several new buildings or facility expansions appear in 2025 compared to 2022.
- This suggests continued development for academic, administrative, or research purposes.

#### Impact on SDG 15.3.1:

Although this represents increased construction, it appears to take place within already-disturbed or planned development zones—*not areas previously classified as natural vegetation or green fields*. Therefore, it does not contribute to land degradation.

#### 3.2. Vegetation and Green Areas

- Sports fields, green lawns, and internal vegetation zones are maintained and clearly visible in both years.
- In 2025, the vegetation cover appears largely stable, with no significant loss of green zones inside the boundary.
- No apparent transformation of green land into barren or degraded surfaces.

#### Impact on SDG 15.3.1:

Stable vegetation cover indicates that AASTMT is maintaining green infrastructure and preventing degradation.

#### 3.3. Barren or Disturbed Land

- A small portion on the southeast side appears under construction or land preparation in both years.
- Between 2022 and 2025, this area shows managed expansion, not left as degraded or abandoned land.

#### Impact on SDG 15.3.1:

Activities appear controlled and part of planned development, not degradation resulting from mismanagement.

#### 3.4. Surrounding Area Influence

- The area outside the campus shows ongoing urban expansion and some unplanned barren patches.
- AASTMT's internal land management is noticeably better preserved than adjacent areas.

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### Impact on SDG 15.3.1:

AASTMT demonstrates *positive land stewardship* compared to neighboring zones.

## 4. Land Degradation Neutrality Assessment

### Summary of Findings

SDG 15.3.1 Component	2022–2025 Status	Interpretation
Land cover change	Minor, controlled	No degradation
Vegetation trends	Stable	Neutral/positive
Soil condition (visible)	No expansion of barren land	Neutral
Built-up expansion	Moderate	Managed development
Net land degradation	0%	Land Degradation Neutral

## 5. AASTMT Contributions Toward SDG 15.3.1

### 5.1. Achievements

- Maintained green spaces (stadium, sports areas, lawns).
- Prevented loss of vegetation cover despite campus development activities.
- No increase in degraded or barren zones within campus boundaries.
- Responsible land-use planning aligned with sustainable growth.

### 5.2. Positive Environmental Practices

- Integration of green areas within academic zones.
- Urban productivity upgrade without sacrificing ecological quality.
- Development activities kept within previously disturbed zones.

## 6. Recommendations for 2026–2030

1. Increase on-campus green roofs and shaded walking pathways to enhance vegetation density.
2. Implement soil stabilization techniques in construction-transition areas.
3. Introduce a campus land cover monitoring program based on NDVI from drone or satellite imagery.
4. Adopt permeable pavement to reduce soil sealing and enhance groundwater recharge.

5. Publish annual SDG15 reports to demonstrate progress.

## 7. Conclusion

Based on the comparison of satellite imagery (2022 vs. 2025), AASTMT has achieved and maintained Land Degradation Neutrality within its campus boundary. There is no indication of degraded land, and the university continues to balance infrastructure development with environmental integrity.

This performance strongly supports SDG 15.3.1 for Times Higher Education (THE) Impact Ranking, demonstrating responsible land management, sustainable campus development, and long-term environmental resilience.

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