Journal of Contemporary Urban Affairs

2021, Volume 5, Number 2, pages 209– 219

Monitoring and Landscape Quantification of Uncontrolled Urbanisation in Oasis Regions: The Case of Adrar City in Algeria

* [1] Dr. **Assoule Dechaicha** , [2] Assist. Prof. **Adel Daikh** , [3] Prof. Dr. **Djamel Alkama**

[1, 2 and 3] Department of Architecture, Faculty of Sciences and Technology, 8 May 1945 University, Guelma, Algeria

E-mail [2]: dechaicha.assoul@univ-guelma.dz , E-mail [1]: alkama.djamel@univ-guelma.dz

E-mail [3]: daikh.adel@univ-guelma.dz

ARTICLE INFO:

Article History:
Received 20 March 2021
Accepted 25 July 2021
Available online 12 August 2021

Keywords:
Uncontrolled Urbanisation,
Satellite Images,
Landscape Metrics,
Palm groves,
Oasis Ecosystem.

ABSTRACT

Nowadays, uncontrolled urbanisation is one of the major problems facing Algerian oasis regions. The monitoring and evaluation of its landscape transformations remain a key step for any oasis sustainability project. This study highlights the evolution of spatial growth in the city of Adrar in southern Algeria during the period 1986-2016 by establishing a Spatio-temporal mapping and landscape quantification. The methodological approach is based on a multi-temporal analysis of Landsat satellite images for 1986, 1996, 2006 and 2016, and the application of landscape metrics. The results show two opposite spatial trends: significant growth of built-up areas against an excessive loss of palm groves. The landscape metrics allowed the identification of a progressive fragmentation process characterising the palm groves. Thus, the findings of this study show the utility of satellite imagery and landscape metrics approach for monitoring urbanisation patterns and assessing their impacts on oasis ecosystems.

JOURNAL OF CONTEMPORARY URBAN AFFAIRS (2021), **5**(2), 209-219.
https://doi.org/10.25034/ijcua.2021.v5n2-5

www.ijcua.com

1. Introduction

Uncontrolled urbanisation is currently a major challenge for spatial planners and developers, given its irreversible effects on the biosphere at different scales. On a global level, cities contribute to the aggravation of problems related to Greenhouse gas emissions, pollution, climate change and the depletion of natural resources. At the local level, the rapid urbanisation of territories is considered responsible for the degradation of agricultural land and local biodiversity as well as problems related to socio-spatial segregation (Elmqvist et al., 2013; UN, 2018). This galloping urbanisation is more accentuated in developing countries, but with less mastery of spatial planning (Cohen, 2006; Güneralp et al., 2017). The arid regions of southern Algeria have not escaped this universal phenomenon,

***Corresponding Author:**
Department of Architecture, Faculty of Sciences and Technology, 8 May 1945 University, Guelma, Algeria
Email address: dechaicha.assoul@univ-guelma.dz

How to cite this article:
Dechaicha, A., Daikh, A. & Alkama, D. (2021). Monitoring and Landscape Quantification of Uncontrolled Urbanisation in Oasis Regions: The Case of Adrar City in Algeria. *Journal of Contemporary Urban Affairs*, *5*(2), 209-219. https://doi.org/10.25034/ijcua.2021.v5n2-5