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Ahmed Alami Merrouni, Fakhreddine Elwali Elalaoui, Ahmed Mezrhab, Abdelhamid Mezrhab, Abdellatif Ghennioui



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# Large scale PV sites selection by combining GIS and Analytical Hierarchy Process. Case study: Eastern Morocco.

Ahmed ALAMI MERROUNI<sup>1,2,\*</sup>, Fakhreddine ELWALI ELALAOUI<sup>3</sup>, Ahmed MEZRHAB<sup>1</sup>,  
Abdelhamid MEZRHAB<sup>3</sup>, Abdellatif GHENNIQUI<sup>2</sup>

<sup>1</sup>Laboratory of mechanics and energy, Faculty of sciences, Mohammed 1<sup>st</sup> University, Oujda,  
Morocco.

<sup>2</sup>Research Institute for Solar Energy and New Energies (IRESEN), Green Energy Park, Bengir,  
Morocco.

<sup>3</sup>Technologies of Geographical Information and Space Management's Team, GIS and Remote Sensing  
Centre, University Mohammed First, Oujda 60000, Morocco

*\*Corresponding author: alami.univ.oujda@gmail.com*

## Abstract:

In this paper, a combination of Geographic Information System (GIS) and the Analytical Hierarchy Process (AHP) has been done to assess the capacity of Eastern Morocco to host large-scale Photovoltaic (PV) farms. For this reason, a GIS database with high spatial resolution has been built using data and layers provided from different governmental organizations. Besides, and in order to pursue high accuracy results, the Global Horizontal Irradiation (GHI) solar map used in this study was derived from a high-quality satellite map with a spatial resolution of 1km/pixel and twenty years of time coverage.

Results show that from the entire region's surface, the highly suitable sites to host PV farms make up 19%, while the unsuitable sites represent 15%. With those results our field of study can be very competitive -in comparison to neighboring countries like Spain- to attract investors in the field. Which will lead to an economical and sustainable development of the region by creating new jobs and producing green electricity.

**Keywords:** GIS, MCDM, Photovoltaic, site suitability analysis, Morocco.

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