

# Sustainability Assessment Report

**Location:** Latitude: 28.293008727951594, Longitude: 73.01960385080186

**Reporting Period:** 2024

## Executive Summary

This report assesses the sustainability potential of the Site Assessment Area based on solar, wind, water resources, and land cover characteristics. The analysis reveals good potential for solar energy harvesting with an estimated 3.785 kWh/m<sup>2</sup>. However, wind energy is not feasible due to low wind speeds. Water harvesting potential is relatively low, influenced by low rainfall, soil, and slope scores. The area is entirely barren, lacking any green cover, making it unsuitable for green infrastructure projects in its current state. The recommendations focus on maximizing solar energy potential and exploring water conservation strategies while addressing the lack of vegetation.

## Detailed Analysis

Resource	Feasibility	Value/Score	Explanation
<b>Solar</b>	👍 Good	3.785 kWh/m <sup>2</sup>	Good potential. Solar installation is beneficial.
<b>Wind</b>	Not Feasible	Average wind speed: 3.187 m/s	Wind speed is too low for a wind farm.
<b>Water</b>	Low	Rainfall: 0.27 Soil: 0.09 Slope: 0.051 Overall: 0.172	Low scores indicate limited water harvesting potential. Further investigation is recommended.
<b>Green Cover</b>	Not Feasible	0.00%	No green cover present.
<b>Barren/Open Area</b>	Feasible	100.00%	Entire area is barren or open. While meeting the >10% criterion, the lack of green cover presents ecological challenges.

**Solar Energy:** The site exhibits good solar potential with an estimated 3.785 kWh/m<sup>2</sup>. This suggests that solar photovoltaic (PV) systems could be a viable option for generating renewable energy.

**Wind Energy:** Wind energy is not feasible at this location. The average wind speed of 3.187 m/s is too low to effectively operate a wind turbine or establish a wind farm.

**Water Resources:** The water harvesting potential appears low based on the provided scores. The low rainfall, soil, and slope scores contribute to the overall low

water harvesting score of 0.172. This suggests limitations in collecting and storing rainwater. Further hydrological studies are recommended to explore alternative water management strategies.

**Land Cover:** The site is completely barren, lacking any green cover. While this meets the barren land criterion (>10%), the complete absence of vegetation presents significant ecological challenges and limits opportunities for green infrastructure development. Revegetation and ecosystem restoration efforts are crucial.

## **Recommendations**

- **Prioritize Solar Energy:** Given the favorable solar potential, prioritize the installation of solar PV systems to harness renewable energy. Conduct a detailed feasibility study to determine the optimal system size and configuration.
- **Explore Water Conservation:** Due to the low water harvesting potential, implement water conservation measures. Investigate alternative water sources, such as groundwater or treated wastewater, and promote efficient irrigation practices.
- **Implement Revegetation and Ecosystem Restoration:** The lack of green cover requires immediate attention. Develop and implement a comprehensive revegetation plan using native species to restore the ecosystem, improve biodiversity, and enhance soil stability.
- **Conduct Further Soil and Hydrological Analysis:** Detailed soil analysis and hydrological studies are recommended to better understand the water infiltration capacity, runoff patterns, and potential for implementing other water management techniques.
- **Consider Micro-Wind Turbines:** While large-scale wind farms are not feasible, explore the possibility of using small-scale wind turbines for localized energy generation, especially if specific locations within the site experience higher wind speeds.