

Sustainability Assessment Report

Reporting Period: January 1, 2024 - December 31, 2024

Location: Site Assessment Area

Executive Summary

This report assesses the feasibility of implementing sustainable energy solutions and analyzes the land characteristics of the Site Assessment Area. The assessment reveals good potential for solar energy generation. However, wind energy is not feasible due to the industrial nature of the land. Water harvesting potential is relatively low based on the combined rainfall, soil, and slope scores. The area exhibits a very low green coverage (0.00%) and a high barren land coverage (98.66%), rendering it unsuitable for green initiatives based on the defined feasibility criteria.

Detailed Analysis

Energy Source	Feasibility	Value/Score	Details
Solar	👍 Good potential	4.089 kWh/m²	Solar installation is beneficial.
Wind	Not Feasible	N/A	Land is industrial, unsuitable for wind farms.
Water Harvesting	Low Potential	0.156 (Overall)	Rainfall: 0.237, Soil: 0.09, Slope: 0.051

- **Solar:** The site exhibits good solar potential with an average daily solar radiation of 4.089 kWh/m². This indicates a favorable environment for solar energy generation and suggests that solar panel installation would be a viable and beneficial option.
- **Wind:** Wind energy generation is deemed infeasible due to the land being classified as industrial. Industrial areas are typically not suitable for large-scale

wind farms due to space constraints, safety regulations, and potential interference with industrial operations.

- **Water Harvesting:** The overall water harvesting potential is low with a combined score of 0.156. While the rainfall score (0.237) indicates some potential for rainwater collection, the low soil (0.09) and slope (0.051) scores suggest challenges in retaining and effectively utilizing harvested water. Further investigation is needed to determine the specific constraints related to soil type and land topography.
- **Green Coverage:** The site assessment reveals extremely limited green coverage (0.00%) and a predominantly barren landscape (98.66%). The feasibility criteria require a green coverage of over 20%, indicating that significant land rehabilitation or greening initiatives would be required before considering projects dependent on green infrastructure.

Recommendations

- **Prioritize Solar Energy:** Given the favorable solar potential, installing solar panels should be prioritized. A detailed feasibility study including energy needs, system design, and cost-benefit analysis should be conducted.
- **Explore Alternative Renewable Energy:** While wind energy is not suitable at this location, other renewable energy sources like biomass or geothermal could be explored if deemed appropriate based on local resources and conditions.
- **Improve Water Management:** Implementing water conservation measures and exploring alternative water sources should be considered due to the low water harvesting potential. Further investigation into soil improvement techniques could enhance water retention capabilities.
- **Land Rehabilitation:** Given the low green coverage, long-term land rehabilitation and greening initiatives are strongly recommended. This could involve planting native vegetation, implementing soil erosion control measures, and promoting biodiversity to improve the ecological health and overall sustainability of the site.