GREEN ALERT

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"Unregulated Solar Farms and the Silent Crisis of Grassland Loss in India"

Image Source: https://www.tandfonline.com/doi/full/10.1080/23311932.2023.2294542#abstract

Introduction

India's ambitious push toward renewable energy, especially solar power, has been celebrated globally as a beacon of sustainable progress. However, beneath the surface of this clean energy transition lies a silent ecological crisis **the rapid, unregulated conversion of native grasslands into solar power project sites**, leading to the **loss of critical wildlife habitats and biodiversity hotspots**. While the country accelerates its clean energy mission, it inadvertently risks violating the very spirit of environmental sustainability.

Solar Energy Boom in India: A Double-Edged Sword

India aims to achieve **500 GW of non-fossil fuel-based energy capacity by 2030**, a significant portion of which will come from solar energy. Programs like the National Solar Mission and state-level solar policies have facilitated large-scale deployment of solar parks, often incentivizing land acquisition in **semi-arid and arid landscapes**. Gujarat, Rajasthan, Madhya Pradesh, and Maharashtra have emerged as key solar hotspots due to abundant sunlight and "barren" land classification.

But here lies the crux: much of this so-called barren land is **actually ecologically valuable grassland**, misclassified due to its seasonal appearance and low tree cover. Grasslands are among the most misunderstood and neglected ecosystems in India neither classified as forests nor prioritized in conservation planning making them **soft targets** for developmental projects, including solar farms.

Why Grasslands Matter More Than We Realize

India's grasslands support a **rich web of biodiversity**, including several endemic and endangered species. They are home to **iconic fauna** such as:

- **Great Indian Bustard** ***(Ardeotis nigriceps)*** – Critically endangered, with less than 200 individuals left in the wild.
- **Indian Wolf** ***(Canis lupus pallipes)***
- **Blackbuck** ***(Antilope cervicapra)***
- **Lesser Florican, Desert Fox, Indian Courser**, and numerous raptors.

These open habitats also act as **carbon sinks**, help **recharge groundwater**, and sustain the livelihoods of **pastoral and agro-pastoral communities** who rely on them for grazing and seasonal crops.

Unfortunately, due to their open and treeless nature, grasslands are **perceived as wastelands**, making them low hanging fruit for land intensive infrastructure like solar parks. The impact is severe and often irreversible.

Solar Projects Encroaching Grasslands: Key Examples

❶ Kutch, Gujarat

The Banni Grasslands in Kutch, one of Asia's largest arid grasslands, have seen growing pressure from renewable energy projects. Though protected under various conservation plans, solar parks and wind farms are being proposed and installed in its buffer zones, threatening the **livelihoods of Maldhari community** and the **habitat of desert dwelling species**.

❷ Pokhran and Jaisalmer, Rajasthan

Home to the last viable populations of the Great Indian Bustard, these regions have witnessed massive installations of solar and wind infrastructure. Power lines associated with these farms have caused **fatal bird collisions**, especially for low-flying species like bustards.

❸ Pavagada, Karnataka

The Pavagada Ultra Mega Solar Park, touted as one of the largest in the world, covers over **13,000 acres**, much of which was f ormerly grazing land. Though it brought temporary jobs, it led to **grazing displacement** and **reduced land access for marginal farmers**.

Ecological and Social Impacts: What's Being Lost

⌘ Biodiversity Collapse

Grassland dependent species are being pushed into fragmented patches, increasing competition, geneti c bottlenecks, and risk of extinction. Night-time lighting from solar farms and regular maintenance activity also disturbs **nocturnal and crepuscular species**.

⌘ Livelihood Disruption

Pastoral communities, such as **Maldharis in Gujarat and Dhangars in Maharashtra**, are losing access to traditional grazing routes. Women and children, who depend on these ecosystems for fuelwood and fodder collection, are disproportionately affected.

⌘ Hydrological Impact

Contrary to assumptions, grasslands play a crucial role in water regulation. Their removal for solar farms, followed by soil compaction and fencing, reduces water infiltration and leads to **microclimatic changes**, including local warming and drying.

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Decentralized solar options like rooftop installations, canal-top solar arrays (pioneered in Gujarat), and building-integrated photovoltaic can meet energy goals **without consuming large land tracts**.

1. Rooftop and Canal

Top Solar Decentralized solar options like rooftop installations, canal-top solar arrays (pioneered in Gujarat), and building-integrated photo voltaics can meet energy goals with out consuming large land tracts.

2. Agrovoltaics

Combining solar panels with compatible farming practices allows for dual land use, supporting both energy production and agriculture.

3. Mapping and Protecting Grasslands

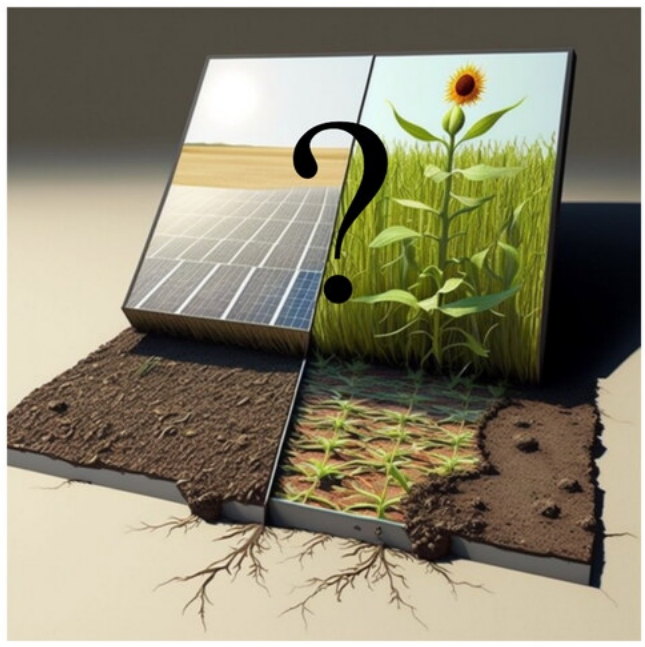
India urgently needs a **national grassland policy**, proper **ecosystem classification**, and **satellite-based monitoring** to prevent mislabeling of grasslands as wastelands.

4. Mandatory Biodiversity Assessments

EIA norms for solar parks must be strengthened to include grassland ecology, migratory routes, and cumulative impact assessments.

5. Buffer Zones and Zoning Regulation

Solar farms should not be allowed in or around **Important Bird Areas (IBAs)**, **Eco-sensitive Zones**, or **Bustard Landscapes** declared by the Ministry of Environment, Forest and Climate Change (MoEFCC).



Call to Action: Responsible Transition is Possible

As we transition to clean energy, it is essential to remember that **sustainability is not just about carbon emissions** it is also about **land, people, water, and biodiversity**. Solar energy must not become a cloak for ecological negligence. Planners, developers, citizens, and governments must come together to demand **greener green energy**.

Let's ensure our quest for a carbon-neutral future does not come at the cost of **India's grassland ecosystems**, which are already among the most endangered habitats in the subcontinent.

Green Alert Takeaway

“Every panel matters. But so does every blade of grass.”

True sustainability lies not just in the energy we produce, but in the life we protect while doing so.