INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD)
© 2026 IJNRD | Volume 11, Issue 8, August 2026 | ISSN: 2456-4184 | IJNRD.ORG

Green Energy Expansion and Its Threat to Biodiversity and Orans in the Thar Desert

Dr Priyanka Yadav,
Associate Professor in Geography, Govt. Girls College, Soorsagar, Jodhpur ,
email:drpriyanka1781@gmail.com

Abstract: *India's thrust for solar energy in recent years is usually projected as a resounding success. As solar photovoltaic energy systems have been identified as one of the main options for reducing greenhouse gas emission and sustainable development. Yet in Rajasthan, often called India's renewable energy hub, the farmers are repeatedly resisting solar energy projects that are seen as a growing threat to their land use, biodiversity patterns and Orans- sacred groves widely regarded as lifeline of the mighty Thar Desert, which is environmentally fragile region. Here people strongly believe that their sacred groves are endangered of destruction as their lands are allotted for solar energy projects that have led to the felling of countless Khejri trees. The challenge is not choosing between solar energy and Orans. It is about designing a model where both can co-exist through accurate mapping, legal recognition of community land and inclusive consultation with local stakeholders. This study focuses on the various impacts of solar park construction, installation and demolition phases on the various environmental aspects such as land use and pattern of biodiversity in Thar desert. A sustainable future for Rajasthan lies not in massive Solar Park which destroys sacred groves but in decentralized community-owned solar projects that integrate with traditional wisdom and landscape. The study emphasizes on the significance of considering environmental long-term impacts while implementing renewable energy projects. The review concludes that while renewable energy contributes significantly to India's low carbon goals, inadequate environmental planning and exclusionary governance structure threaten the ecological balance and cultural resilience of desert communities. To guarantee sustainable growth of renewable energy along with conservation of biodiversity, various mitigation methods are suggested including GIS based sustainable site selection, better recycling procedures, local communities' involvement etc. The efficiency of renewable energy projects lies in appropriate policy support and technology advancements such as bird friendly turbines, agrovoltaics etc be used.*

Keywords: *Solar photovoltaic energy, Sustainable development, Renewable energy hub, Biodiversity, Orans, Mitigation, Installation, local stakeholder, Community land, Solar Park, Agrovoltaics.*

Introduction

One of the main causes of global warming and climate change is greenhouse gas emissions. The most important ways to combat climate change and reach net zero emission of greenhouse gases objectives is to accelerate the world's switch to renewable energy. The role and goal of renewable energy technologies like solar photovoltaic, wind hydropower and bio energy etc is to lessen reliance on fossil fuels and the greenhouse gas emission that comes with them. Western Rajasthan which is also known as a green energy hub has emerged as the epicentre of the country's renewable energy revolution and it is appropriate for generating solar and wind energy. The Thar desert has recently become a focus area for solar energy development due to ample sunlight and huge area of uncultivated land suited for solar panel installation. The installation of solar panels in the Thar desert has the potential to generate clean energy, reduce greenhouse gas emission and create jobs for residents. However, the rapid expansion of solar energy infrastructure may have a severe impact on regional land use and biodiversity pattern. It has negative effect on birds and bats, threats to wildlife as the conversion of natural ecosystem into solar farms can result in habitat loss, fragmentation and degradation.

Contributing nearly 25% of India's installed solar capacity, the state has transformed its vast desert expense into a key site for solar and wind energy generation (Pandey et al., 2012; MNRE,2023). India's renewable energy ambitions are vast. Under the COP26 declaration, the country aims to achieve 500 GW of non-fossil fuel-based electricity capacity by 2030 and reach net-zero emissions by 2070. Given its abundant sunlight and open landscapes, Rajasthan has emerged as a hub for large-scale solar parks. Rajasthan leads India in solar energy generation and is critical to the country's climate conditions. With high solar radiation exposure Rajasthan's Thar desert is considered an ideal for solar power according to the Ministry of new and renewable energy. Rajasthan has the highest installed solar capacity in the country of 7737.95 Megawatts, however, solar installations and plans for future expansion come at the cost of existing village commons.

Fig-1 : Bhadla Solar Park, Jaisalmer

The Thar desert with its high solar insolation's and sparse population offers ideal conditions for energy infrastructure such as the Bhadla Solar Park, Jaisalmer, Pokhran region, wind cluster and new development in Barmer and Jalore. The Thar desert, a unique ecosystem in India is witnessing a profound transformation due to the rapid expansion of green energy projects. In Western Rajasthan there are conflict areas where biodiversity, Orans and renewable energy development intersect and provide serious obstacles to the growth of sustainable energy without endangering the ecosystem. Large scale solar and wind energy projects frequently overlap the biodiversity rich and ecologically sensitive Oran areas. Important habitats for threatened species such as great Indian busters found in Thar desert region. Transmission lines and other infrastructures associated with solar and wind projects are a hazard to Great Indian bustard survival because of habitat loss and indirect power line death.

Fig-2 : Orans in Rajasthan

The conflict between orans and green energy projects in Rajasthan highlights the tension between renewable energy expansion and the protection of sacred ecological commons. Although the growth of renewable energy systems can present serious hazards to biodiversity due to habitat loss, fragmentation and disruption of ecosystems supporting a variety of species, these technologies also lessen climate related concerns. Wind turbines for instance have been connected to bat and bird death while massive solar farms can disturb the terrestrial ecosystem. Here in Western Rajasthan conflict arises between renewable energy generating projects and protecting biodiversity and Orans.

Fig-3: Grid lines hazard for birds

No doubt it is a complicated twin task to increase renewable energy while also protecting biodiversity. A key cause of biodiversity loss globally is the climate issue which is worsened by emission from fossil fuel as a result renewable energy is crucial to the long-term survival of nature. By reducing atmospheric concentration of carbon dioxide and other greenhouse gases this transaction to cleaner energy sources helps to slow down temperature increases and mitigate climate change. By contrast, conservation efforts can be undermined if energy infrastructure expansion is not well managed, leading to the degradation of important ecosystems. It acknowledges that what may appear as "wasteland" in revenue records could actually be living ecosystems embedded in local traditions.

Fig-4: Oran under Threat

India's strong push for solar energy in recent years is usually projected as a resounding success. Yet, in Rajasthan, often called India's renewable energy hub, farmers are repeatedly resisting solar projects that are seen as a growing threat to their Orans — sacred groves widely regarded as lifelines of the mighty Thar Desert. Residents of western Rajasthan have held numerous protests in recent years to demand the protection of Orans, which people believe are in danger of destruction as their lands are allotted for solar energy projects that have led to the felling of countless trees. These projects cut down *Khejri* trees which are crucial for the desert ecosystem they also take over the *Gochar* and *Oran* lands. Local communities, however, are angry that vast tracts of Orans are being allotted for this solar expansion. Protests, including long marches across the state, reflect growing fears that such allocations could devastate local ecologies and livelihoods. In the latest protest this year, people undertook a 700-km padyatra from Jaisalmer to Jaipur to press the government to protect Orans and traditional commons that villagers in Rajasthan have preserved for centuries.

The need for multisectoral frameworks that incorporate scientists, conservationists, politicians and local stakeholders in efficiently aligning energy and biodiversity goals is becoming more apparent. Finding low conflict zones to build renewable infrastructure can be held by using special technology like GIS for ecological risk mapping.

Fig:5 Oran: Grove of the Gods

This paper covers the specific conflict between khejri trees conservations and Solar Park expansion in the Thar desert. The khejri is the state tree of Rajasthan and is sacred to the local community who have historically laid down their lives to protect these trees (The kejri massacre of 1730). Thousands of trees are being uprooted for solar installation repeating the same conflict between development and ecological heritage in a new form.

Orans: Orans are traditional sacred groves in Rajasthan. The word "orans" is a derivative of the Sanskrit word *"Aranya"* meaning the undisturbed forest. They are not just patches of trees, but living ecological and cultural heritage systems that sustain pastoral communities, recharge groundwater for water security, and function as grazing commons, crucial for biodiversity hotspots, conservation and climate buffers in the harsh

Thar Desert, which are dedicated to local deities and also have strong religious, ecological and social economic significance. The Rajasthan orans are home to the endangered Great Indian bustard, chinkara, the Indian desert fox etc. Orans not only conserve biodiversity in arid zones, they provide food and fodders under harsh climatic conditions such as prolonged drought. The land is under threat now as they are sought to be used for generating green energy solar in particular.

The convention on biological diversity aims to bring 30% of the earth land and sea under protection including biodiversity rich areas outside recognised protected areas. This paper explores the potential of Rajasthan sacred groves or orans to contribute to this target. By conservative estimate Orans cover 6 lakh hectares of land in Rajasthan state. The national environment policy of India 2006 stresses the importance of the conservation of Orans because of their incomparable values. Orans provide a refuge for many native plants and animals, especially in areas heavily grazed or cleaned. Yet orans faces multiple threats such as pollution, uncontrol development and encroachment by increasing human population and livestock. The paradox emerges when land categorised as "*wasteland*" for solar development includes ecologically sensitive Orans. Rajasthan's desert landscapes are often wrongly perceived as barren and empty, making them easy targets for industrial-scale renewable energy projects. However, as locals and conservationists argue, these lands are biologically productive and socially invaluable. Besides providing grazing land for livestock, Orans support native species such as *Khejri and Rohida* trees, blackbucks, chinkaras, and even the endangered *Great Indian Bustard*. Water bodies embedded within Orans also support both wildlife and human survival.

Destroying Orans in the name of green energy creates a contradiction in the very concept of sustainability. Solar energy is promoted as environmentally friendly because it reduces carbon emissions and dependence on fossil fuels. For the state, land is classified through revenue records — wasteland, agricultural land, or forest land. But for local communities, land is defined by use, tradition, and collective memory. This disconnect is critical because when Orans are not officially recorded, they become easy targets for acquisition.

Study Area

Western Rajasthan encompassing vast stretches of the Thar desert represents one of the most ecologically fragile and climatically extreme regions of India covering districts such as Jaisalmer, Barmer, Bikaner, Jodhpur. The region is characterized by its unique landscape of sand dunes, sparse vegetation and an arid climate. Annual rainfall in the area is often less than 250 mm with high evaporation rates further intensifying water scarcity. The extreme temperature fluctuations ranging from freezing winters to scorching summers add to the challenges of sustaining life and livelihood in this harsh environment. The land of Western Rajasthan is prominently shaped by arid and semi-arid conditions .Thar desert do seemingly balance supports a variety of flora and fauna, uniquely adapted to its harsh condition however the pressure of solar energy production, desertification have led to habitat loss and decline in species diversity, further destabilizing the fragile desert ecosystem.

Objective of the study

(1) To analyse the environmental and ecological impact of renewable energy development on biodiversity, land use and Orans in western Rajasthan focusing on solar and wind energy projects.

(2) To identify key conflict zones and challenges where solar and wind energy infrastructures overlap with biodiversity rich and ecologically sensitive areas of Orans.

(3) To identify the challenges faced by local communities in preserving orans (sacred groves) in Western Rajasthan from encroachment by green energy projects.

(4) To provide a balanced account of solar energy benefits and problems with regards to sustainability.

(5) To explore and suggest sustainable planning strategies, policy interventions, and technological solutions that can harmonize renewable energy expansion with biodiversity conservation goals.

Data collection sources

The study is based on secondary data gathered from a variety of reliable sources to guarantee a thorough comprehension of the subject. Government structures and their alignment with biodiversity conservation goals are also examined through the consultation of policy papers, biodiversity assessment and strategic environmental impact studies, newspapers articles. This secondary analysis enables an integrative understanding of how renewable energy development interacts with ecological sustainability in arid regions.

Environmental impacts of Solar and wind energy development in Thar desert

Large scale land usage for solar and wind energy can result in habitat loss and fragmentation specially in ecologically dedicate reasons like shrub lands and desert by turning natural or semi natural landscapes into large scale solar and wind farms which have put endangered animals like the desert tortoise, The Great Indian bustard etc in habitat loss. Wind farms directly kill wildlife, collisions with turbine blades have been known to kill birds and bats. According to studies, wind turbines cause millions of bird fatalities every year. Wildlife behaviour and breeding habits may be disrupted by noise pollution and habitat disturbance caused by turbine operating and related equipment. Additionally, wind development can alter the migratory paths of airborne species and fracture the landscape.

(1) **Impact on Flora in Thar Desert**: The Khejri tree, a keystone species in the Thar Desert, plays a crucial role in maintaining the delicate ecological balance. Khejri is slow growing highly resilient tree with deep roots (up to 90 m) vital for agro forestry and culturally sacred to the local communities. Aggressive development of solar and wind mills plants in Rajasthan is leading to the mass felling of thousands of native Khejri trees and the enclosure of orans. It provides shade, fodder, and nesting spaces for birds, insects, and mammals.

(2) **Disturbance to Migratory Bird Routes and nesting due to Wind Turbines**: The Thar Desert is part of the migratory routes of several bird species, including cranes, raptors, and flamingos. Large wind turbines, often placed in these migratory corridors, pose a physical threat. Birds are at risk of colliding with turbine blades, leading to injuries or fatalities. The noise and vibrations from wind farms disrupt nesting and foraging behaviours, pushing migratory and resident birds away from their natural habitats.

(3) **Increased Risk of Extinction for Desert-Adapted Species:** Desert ecosystems are home to species that have uniquely adapted to arid conditions. The fragmentation of habitats due to solar and wind energy projects puts additional stress on these species, many of which are already vulnerable or endangered. For example, the Great Indian Bustard, a critically endangered bird, is facing an increased threat from power lines and turbines within its habitat. Habitat loss, coupled with declining resources like water and vegetation, accelerates the risk of local extinction for smaller desert fauna, including reptiles and rodents.

(4) **Loss of natural habitat of wild life:** Open landscapes, vital for ground-dwelling creatures such as the spiny-tailed lizard and desert monsters, are being converted into industrial zones, depriving these animals of their natural habitats.

(5) **Cultural Erosion Due to Destruction of Oran Lands:** Oran lands, sacred groves preserved by local communities for religious and ecological purposes, are being repurposed for energy infrastructure. These groves are deeply ingrained in the cultural identity of the desert's inhabitants, serving as sites for rituals, festivals, and communal gatherings. The destruction of Oran lands not only threatens biodiversity but also weakens the spiritual and cultural connections of the communities

to their land. Loss of Orans undermines centuries-old conservation practices, as these sacred lands were often managed sustainably by local traditions.

(6) **Displacement of Pastoral Communities Reliant on Gochar Lands:** Gochar lands, traditionally used for grazing livestock, are critical for the livelihoods of pastoral communities in the Thar Desert. The acquisition of these lands for energy projects displaces herders, forcing them to seek alternative grazing areas or abandon livestock rearing altogether. Reduced access to grazing lands leads to overgrazing in other areas, further degrading the fragile desert ecosystem.

(7) **Loss of Traditional Livelihoods Tied to Livestock Rearing**: Livestock rearing is a cornerstone of the Thar Desert's economy and culture, providing income, food, and sustenance for rural households. The shrinking availability of grazing lands directly impacts livestock health and productivity, diminishing the income and food security of local families. Many pastoralists are compelled to migrate to urban areas or take up low-paying, unsustainable jobs, eroding their traditional way of life.

Solutions for Sustainable Development in the Thar Desert

To balance the goals of green energy with the preservation of its biodiversity and the protection of local livelihoods, the need for sustainable development in the Thar Desert is inescapable. To ensure that renewable energy project in the Thar Desert do not soar at the cost of environmental degradation or social disruption, a holistic approach is needed that integrate policy reforms, corporate accountability, community involvement, and conservation initiatives.

(1) **Floatavoltaics**: Also known as floating solar farms. Their installation can reduce water evaporation and help to conserve land in desert ,gae blooms by blocking sunlight, contributing to better water quality. Some birds might be deterred due to the large floating structure which could potentially be effective nesting or feeding patterns. It also noted that if not managed properly these structures could pose a collision risk the shading caused by the panels could impact underwater water life which in turn may affect the overall aquatic food chain.

(2) **Residential solar panel:** Generally have a low impact on wildlife, if installed correctly. Any such as birds nesting under panels can be easily mitigated using measures such as critters guard. The glare from residential solar panels disorienting birds can be addressed by carefully positioning and angling of the panel.

(3) **Birds and bats friendly wind turbines:** Collision mortality among flying wildlife is decreased by innovation such as altered blade designs, painted blades to improve visibility and operation restrictions during peak migration AI powered wildlife monitoring enables dynamic turbine shut downs to stop facilities by detecting sensitive species in real time. Companies must ensure that their infrastructure does not disrupt wildlife corridors or migratory routes for birds and animals.

(4) **Enforce Compensatory Afforestation for the Loss of Trees Like Khejri :** The loss of Khejri trees harms the desert's ecological balance. Compensatory afforestation efforts must offset this loss. The government should require planting native species, not fast-growing alien trees. Reforestation projects must be regularly monitored. Continued care and protection should ensure high survival rates. Only then can afforestation efforts replace what has been lost.

(5) **Establish Wildlife Corridors to Protect Desert Fauna**: The construction of wildlife corridors is critical to allow desert-adapted species to migrate freely without facing barriers from human activity. These corridors should connect important habitats such as Oran lands, and provide safe passages for wildlife, ensuring genetic diversity and access to vital resources.

(6) **Strengthen Regulations to Protect Gochar and Oran Lands:** Gochar lands traditionally use for grazing by local pastoral communities. Oran lands, sacred groves that serve as ecological hotspots, must be legally protected from solar and wind energy project encroachment. Government policies should impose stricter regulations that prohibit the diversion of these lands for energy projects unless alternative grazing and conservation areas are provided for affected communities .An integrated approach that acknowledges the ecological and cultural significance of these lands is crucial, ensuring that development does not occur at the expense of local heritage and biodiversity.

(7) **Agrovoltaics**: Optimising land usage, minimising habitat destructions and preserving biodiversity by promoting pollinators and native plants are all possible when solar photovoltaic electricity is combined with agricultural or natural vegetation beneath and around solar panels.

(8) **Conduct Detailed Environmental Impact Assessments (EIAs)**: Solar projects must be subjected to mandatory EIAs land records must formally recognise and protect orans. Environmental impact assessment regulation strength and standardised ensure that green energy companies must be required to conduct thorough and transparent Environmental Impact Assessments (EIAs) before beginning any project in ecologically sensitive areas like the Thar Desert. These EIAs should be reviewed and approved by independent environmental experts, ensuring that the potential ecological, social, and cultural impacts are fully understood and mitigated. EIAs should also include detailed plans for habitat restoration, compensatory afforestation, and long-term monitoring of wildlife populations.

(9) **Biodiversity sensitive planning and Ecological zoning:** Embedding ecological criteria into energy project policies fosters site selection that deliberately avoid biodiversity hotspots, critical habitats and migration corridors. Designating areas based on ecological sensitivity helps concentrate renewable infrastructures in low conflict zones while protecting high value conservation areas.

(10) **Community Involvement**: We must actively involve local communities in decision-making processes regarding land use and development projects in the Thar Desert. Transparent consultations with indigenous and pastoral communities ensure their needs and rights are respected. This should occur during the planning and execution of energy projects. Collaboration should also include the creation of joint governance frameworks for managing and protecting Gochar and Oran lands, integrating local conservation practices into modern policies.

(11) **Support Alternative Livelihoods to Reduce Dependence on Grazing Lands:** To mitigate the impacts of land acquisition for energy projects, we must offer alternative livelihoods to displaced communities. Initiatives such as training in sustainable agriculture, eco-tourism, and other green jobs can help pastoral communities transition without losing their source of income. Providing financial and technical support for these new livelihoods will allow communities to thrive in a way that complements environmental conservation efforts rather than undermining them.

The Thar Desert is a fragile ecosystem. Green energy development must be carefully managed to avoid ecological degradation and social harm. India can achieve this by strengthening regulations, holding companies accountable on ground, involving local communities, and prioritizing conservation. This approach will protect both people and the environment. It will allow the Thar Desert to thrive as a biodiversity hotspot while supporting renewable energy goals.

Conclusion and Recommendations

Although green energy is essential for lowering greenhouse gas emission and halting climate change, its badly thoughtout implementation runs the danger of jeopardizing biodiversity conservation by causing habitat degradation and the extinction of species. Solar energy is an alternative energy source, so it has become indispensable today due to being an environmentally friendly and infinite energy source. The need for a balanced green transition is the demand of the present scenario. The need for integrated planning techniques is underscored by the conflict that arises between green energy and green biodiversity and environment in the Thar desert.

India's transition to renewable energy is non-negotiable, but so is the protection of ecological commons and community rights. While renewable energy aims to save the planet from climate change, its unregulated expansion risks destroying ancient ecosystems such as sacred Orans and local ecosystem that have protected nature from centuries. The Thar desert exemplifies the complex interplay between renewable energy progress and ecological vulnerability. A sustainable future for Rajasthan desert depends on harmonizing energy innovations with ecological stewardship and social justice.

The challenge is not choosing between solar energy and Orans. By protecting Orans Rajasthan maintains its ecological balance and boosts environmental awareness based on traditional wisdom. It is about designing a model where both can coexist through accurate mapping, legal recognition of community lands, and inclusive consultation with local stakeholders. A sustainable future for Rajasthan lies not in massive solar parks that destroy sacred groves, but in decentralised, community-owned solar projects that integrate with traditional wisdom and landscapes. The preservation of orans is essential as they hold immense ecological and cultural significance serving as biodiversity hotspots and supporting many plants and animals. Orans also play a crucial role in fighting desertification caused by human damage and reducing soil erosion. They provide fodder and medicinal crops to local communities and support traditional values of caring for the environment.

What is urgently needed is a more nuanced green transition that ensures clean energy and conservation coexist harmoniously. Only then can the green energy dream in India and Rajasthan become truly sustainable. In order to reduce ecological harm by achieving green energy goals policies should incorporate biodiversity criteria, use special planning techniques, legal protection of Oran land and community grazing lands, improve environment and impact assessment and embrace cutting edge technology. It will need cross-sector cooperation between politicians, scientists, conservationists and local peoples to strike a balance making biodiversity preservation and climate mitigation complementary goals rather than conflicting once.

Refrences:-

(1) Sinha, S., & Raghunathan, A. Renewable energy expansion and biodiversity conservation in India's Thar Desert. Conservation Science and Practice, 4, 10, 2022, e1273. Singh, G., & Sharma, S. Desert ecology and functional aspects of desert ecosystems. Springer Nature Publications, 2025, 1–288.

(2) Basu, P., et al. Renewable mega-projects and climate resilience in desert areas. Sustainability, 16, 2, 2024, 765–778.

(3) Roy, D., & Paliwal, N. Farming the wind: Aeolian politics and the sacred desertscapes (Orans) of Rajasthan. Ecological Ambivalence and Contestations, Springer, 2024, 87–104.

(4) Choudhary, S.K., et al. Thar Desert bioresources: significance, conservation and sustainable management in Anthropocene. Indian Journal of Ecology and Environmental Sciences, 47, 1, 2022, 23–35.

(5) Narula, K. Energy transition and land conflicts in India's deserts. Energy Research & Social Science, 77, 2, 2021, 102478.
(6) Choudhary, A. and Jain, S. (2020) Trade-offs between solar energy development and biodiversity conservation in the Indian Thar Desert: A review. Renew. Sustain. Energy Rev., 122, 109746

(7) Salem, S.M. and Ibrahim, S.K. (2019), Impact of solar energy development on land use and biodiversity: A review. Renew. Sustain. Energy Rev., 100, 151–164

(8) A. Suman, "Role of renewable energy technologies in climate change adaptation and mitigation: A brief review from Nepal," 2021. doi: 10.1016/j.rser.2021.111524.

(9) Meena, R.S., et al. The most promising solar hot spots in India: The Thar Desert of Rajasthan. International Journal of Engineering Development and Research, 3, 4, 2015, 1501–1507.

(10) Hastik, R., Basso, S., Geitner, C., Haida, C., Poljanec, A., Portaccio, A., Vrščaj, B. and Walzer, C. (2015) Renewable energies and ecosystem service impacts. Renew. Sustain. Energy Rev., 48, 608–623.

(11) Batra, G. "Renewable energy economics: achieving harmony between environmental protection and economic goals." Social Science Chronicle 2, no. 2 (2023): 1-32.

(12) Sahu, Alok, Neha Yadav, and K. Sudhakar. "Floating photovoltaic power plant: A review." Renewable and sustainable energy reviews 66 (2016): 815-824.

(13) Abdelal, Qasem. "Floating PV; an assessment of water quality and evaporation reduction in semi-arid regions." International Journal of Low-Carbon Technologies 16, no. 3 (2021): 732-739.

(14) Pandey, S., et al. Determinants of success for promoting solar energy in Rajasthan, India. Renewable and Sustainable Energy Reviews, 16, 5, 2012, 2926–2937.

(15) प्रशासन गांवों के संग - हे माँ, तुम बन जाओ गोचर ओरण रक्षक, राजस्थान पत्रिका नवंबर 2021

(16) जलाशयों पर तैरेंगे सोलर प्लांट 5,070 करोड़ की योजना को हरी झंडी, राजस्थान पत्रिका 1 अगस्त 2026