



Deployment of Naturegreen Exports, Hollow Triangle-Shaped Evaporation Control Floating Covers at NPCIL, Kota, Rajasthan

Introduction

Water conservation is a critical requirement for strategic infrastructure operating in extreme climatic conditions. The Nuclear Power Corporation of India Limited (NPCIL), Kota, Rajasthan, functions in a high-temperature zone where summer temperatures often exceed 45°C, leading to severe evaporation losses from open water reservoirs.

These reservoirs are vital for emergency water storage and operational safety. To address evaporation losses, water quality degradation, and algae formation, Naturegreen's Hollow triangle-shaped evaporation control floating covers were deployed. This case study presents the before-and-after impact of the solution.

Background & Challenges

NPCIL Kota experiences:

- Intense solar radiation
- Long summer seasons (March–June)
- High evaporation rates
- Rapid algae growth due to sunlight exposure

Before installation, the reservoirs faced:

- High daily evaporation losses
- Reduction in emergency water reserves
- Algae growth due to photosynthesis
- Oxidation and biological degradation of stored water
- Increased chemical usage and maintenance effort

These factors directly impacted water security and operational reliability.



Solution Implemented

Naturegreen Exports supplied design-registered Hollow triangle-shaped floating covers, manufactured from UV-stabilized, chemically inert polymer.

Key features:

- Modular, free-floating design
- ~90–95% surface coverage
- Blocks direct sunlight
- Reduces wind-driven evaporation
- Allows micro-level gas exchange
- No power, pumps, or civil modification required

Installation was completed without interrupting reservoir operations.

Performance: Before vs After

Before Floating Covers

- Evaporation losses of 6–8 mm/day during peak summer
- Rapid water heating and oxidation
- Frequent algae formation
- High chemical dosing and maintenance
- Reduced confidence in long-term emergency water storage

After Floating Covers

- 70–85% reduction in evaporation losses
- Stable water levels even during extreme heat
- Near-elimination of algae growth
- Reduced oxidation and bio-degradation
- Minimal chemical usage and maintenance



Key Benefits Achieved

- Significant water conservation, preserving emergency reserves
 - Improved water quality and thermal stability
 - Lower operational and chemical treatment costs
 - Zero energy consumption and low carbon footprint
 - Enhanced reliability of critical water infrastructure
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Sustainability & ESG Alignment

The floating cover system supports:

- Water conservation and climate resilience
 - Reduced chemical dependency
 - Environmentally responsible operations
 - ESG and sustainability objectives
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Conclusion

The deployment of Naturegreen Exports, Hollow triangle-shaped evaporation control floating covers at NPCIL, Kota has proven to be a reliable, sustainable, and cost-effective solution for managing emergency water reservoirs under extreme climatic conditions.

By significantly reducing evaporation, preventing algae formation, and controlling oxidation and biological degradation, the solution ensures long-term water security and operational confidence for critical infrastructure.

BEFOR AND AFTER INSTALLATION PICTURES

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