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Editorial

Building green and climate-resilient healthcare facilities in Uttarakhand: A step for a sustainable climate resilient healthcare

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ABSTRACT

Climate change presents significant risks to human health, with healthcare facilities increasingly vulnerable to extreme weather, floods, droughts, and climate-sensitive diseases. This study examines the development of Green and Climate-Resilient Healthcare Facilities in Rudraprayag, Uttarakhand, through multi-sectoral collaboration. Key interventions include energy audits, LED lighting, solar panel installation, and rainwater harvesting, aimed at enhancing sustainability and resilience. The initiative demonstrates the importance of proactive adaptation measures and sustainable practices in healthcare infrastructure, providing a model for other regions to ensure continuous, high-quality care amid escalating climate threats. This approach underscores the critical need for innovation, collaboration, and commitment in building climate-resilient health systems.

1. Introduction

Climate change poses significant and growing risks to human health and well-being. Proactive, timely, and effective adaptation measures can significantly reduce these risks and, in some cases, potentially avoid them altogether. Healthcare facilities are increasingly at risk from climate change impacts, such as extreme weather events, floods, droughts, and climate-sensitive diseases. These impacts can disrupt essential services and harm vulnerable populations. However, a significant adaptation gap still exists, particularly concerning human health, well-being, and disaster risk responses. Building the climate resilience of healthcare facilities is essential to ensure they can continue to provide high-quality, accessible, and affordable care, even in the face of climate change. This involves adopting environmentally sustainable practices, such as optimizing resource use and minimizing waste, which not only reduce environmental impact but also help reduce facility costs and improve affordability.[1] Climate-resilient healthcare facilities are those capable of anticipating, responding to, coping with, recovering from, and adapting to climate-related shocks and stresses, ensuring continuous and sustainable healthcare for their target populations despite climate instability.[2] In light of these pressing concerns, multi-sectoral collaboration on health and climate change policy is essential. This requires constant infrastructural and financial interventions to facilitate climate-resilient development pathways (CRDPs). Such development has strong potential to generate substantial co-benefits for health and well-being, while also reducing risks of involuntary displacement and conflict. Sustainable and climate-resilient development, which decreases exposure, vulnerability, and societal inequity, and which increases

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timely and effective adaptation and mitigation, can reduce the impacts of climate change on health, well-being, involuntary migration, and conflict. Nevertheless, key transformations are needed to facilitate these pathways, especially as the likelihood of dangerous risks to human health is on the rise.[1]

Uttarakhand, with its diverse topography and fragile ecosystems, faces multifaceted challenges stemming from climate variability and extreme weather events, which directly impact public health infrastructure. Uttarakhand is located in the central Himalayas and is highly vulnerable to natural hazards and future climate change. Rates of warming in the Himalayas are greater than the global average and the impacts of climate change are anticipated earlier in this region than in other parts of India. These impacts include a decline in snowfall and extent, more intense rainfall, landslides, floods, and droughts. In response, the development of Green and Climate-Resilient Healthcare Facilities in Rudraprayag represents a forward-thinking approach to strengthening healthcare systems against climate hazards.

2. Methodology and Results

Rudraprayag's initiative stems from a gap analysis that identified three key healthcare facilities—District Hospital, Community Health Centre Augustyamuni, and Primary Health Centre Ukhimath—as primary candidates for green and climate-resilient measures. This initiative, driven by an interdepartmental collaboration between the Health Department, Uttarakhand Renewable Energy Development Agency (UREDA), and the Water Board, highlighted the importance of collaborative efforts in addressing complex environmental and health challenges.

Several critical interventions formed the backbone of this project. An energy audit was conducted by UREDA, in coordination with the District Health Department, as the first step. This audit identified opportunities to enhance energy efficiency, leading to the replacement of non-LED bulbs with energy-efficient LED alternatives. Such measures significantly reduce the energy consumption and carbon footprint of healthcare facilities.[3]

Installing solar panels and batteries, tailored to the energy needs of each facility ensures a reliable power supply, even during frequent power outages caused by extreme weather events.[3,4] (Guidelines for Green and Climate Resilient Healthcare Facilities) This shift towards renewable energy not only improves energy security but also supports environmental sustainability.

Water conservation measures have also been prioritized, with rainwater harvesting systems installed by the Water Board in collaboration with the District Health Department. These systems capture and store rainwater, providing a sustainable water source crucial for healthcare facilities, especially during water scarcity.

Integrating these green and climate-resilient measures into healthcare facility development aims to catalyze a paradigm shift towards sustainability in public health infrastructure. The ultimate goal is to create healthcare facilities that can withstand climate impacts while contributing positively to environmental stewardship.[3]

3. Conclusion and the Way Forward

The collaborative efforts of various government agencies and healthcare stakeholders are central to the success of this project. Together, it is necessary to build a healthier, more Climate resilient health care delivery system for the people, where healthcare facilities serve as pillars of environmental stewardship, public health resilience, and community well-being. As the impacts of climate change become more pronounced, other regions must adopt similar strategies. By fortifying healthcare systems against climate threats, we can ensure these facilities remain the mainstays of support and safety for their communities.[2] The initiative in Rudraprayag provides a practical example of how innovation, collaboration, and commitment can contribute to building a sustainable and secure future, especially in the face of a changing climate with a higher probability of the onset of extreme events.

4. Conflict of Interest

None.

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