# Chapter 13
# Snowy Allure and Environmental Stress: Kishangarh's Marble Slurry Dilemma

**Saumya Kapil**
*Christ University, India*

**Viranch N. Dave**
*Maharaja Sayajirao University of Baroda, India*

## ABSTRACT

*Amidst India's significant marble production, particularly in Rajasthan, the Kishangarh dumping yard has undergone a notable transformation from a marble slurry accumulation site to a popular tourist spot. Despite this shift, concerns persist regarding environmental and public health impacts, highlighting the urgent need for sustainable waste management strategies. This study utilizes historical satellite data, focusing on Landsat imagery from 1998 to 2023, to establish a reliable Normalised Difference Vegetation Index (NDVI) centred around the marble slurry location. The comprehensive NDVI mapping reveals the expanding influence of marble slurry on vegetation dynamics, drawing attention from niche tourist demographics and younger generations. The case of Kishangarh illustrates the complex interplay between economic, ecological, and aesthetic factors in the modern era, showcasing a narrative of transforming disorder into viral online content.*

DOI: 10.4018/979-8-3693-3398-3.ch013

## 1. INTRODUCTION

In modern construction practices, dimensional stones, particularly marbles, are prominent due to their aesthetic appeal, durability, and diverse applications. However, the prolific utilization of marbles comes at a cost, leading to the generation of substantial waste during the sawing, grinding, and polishing processes (Rana et al., 2016). The growth in natural stone waste output and its escalating environmental repercussions have ignited vigorous debates within the scientific community. The focal point of these deliberations often centers around waste minimisation strategies rooted in a circular economy framework (Careddu, 2019). Marble, a metamorphic rock borne from the transformation of pure limestone, serves as a prime example of these challenges. Its intrinsic purity dictates its colour and appearance, with the classic white hue arising from limestone composed solely of calcite (100% CaCO3). Notably, marble's inherent durability and noble appearance render it a sought-after material for construction and decoration. However, the byproduct of this utilization is a substantial volume of powder produced during cutting operations (Baghel et al., 2015). This byproduct, amounting to an alarming 20% of total quarried marble, accumulates in millions of tons, presenting a formidable environmental predicament globally.

The dimensional stone industry in India holds a pivotal role; it amounts to 16% of the world's production, as can be observed in Table 1, driven by its rich geological heritage and extensive range of high-quality stones (Ericsson, 2019). Notably esteemed for its vibrant and translucent hues, uniform texture, glossy polished surface, and tactile smoothness, marble is a premier choice for dimension stone in India. Within the Indian context, Rajasthan emerges as a pivotal epicenter for marble deposits in terms of quality and quantity. Boasting abundant reserves of approximately 1231 million tonnes (M.T) of high-grade marble, the state is the primary hub for marble processing in the nation, housing nearly 95% of the total processing units (Lall, 2017). This thriving industry is distributed across various centres, including Makarana, Jaipur, Alwar, Ajmer, Udaipur, Nathdwara, Rajsamand, and many more, boasting over 1500 gangsaws and 5000 automatic tiling plants. Rajasthan commands over 90% of the country's total marble production, with varieties like Makarana, Rajnagar, Andhi, Salumber, and others gracing its expanse.

*Table 1. World production of dimensional stones (kt)*

| Country | Production (kt) | Rank | Share (%) |
|---|---|---|---|
| China | 49,000 | 1 | 32 |
| India | 24,500 | 2 | 16 |

continued on following page