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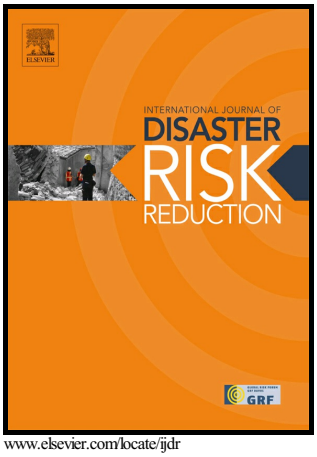

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Bashir Ahmad[a], Akhtar Alam[b] M. Sultan Bhat[c] Shabir Ahmad[d] Muzamil Shafi[e] Rehana Rasool[f]
[a] Department of Geology, Nawakadal School, Safakadal, Sekidafar Road, Srinagar-190002, India.
[b,c,d,f] Department of Geography & Regional Development, University of Kashmir, Hazratbal, Srinagar-190006, India.
[e] Shah-i-Hamadan Institute of Islamic Studies, University of Kashmir, Hazratbal, Srinagar-190006, India.
[Tectonics and Natural Hazards Research Group]
[*]Corresponding Author: Bashir Ahmad
E-mail: bashirahmad1@live.com
Tel: + (91) 9419011778
Fax: + (91) - (0) 194- 2450047

Abstract
Since its inception, Kashmir Valley has been characterized by intense seismicity that has left a strong imprint on the country's landscape, heritage and traditions. In fact, its architectural heritage is largely shaped by the interrelationship of the natural with the human and of the physical with the social. Beginning with classical stone architecture during the first millennium, followed by a period of building with wood, Kashmir finally witnessed vernacular (mixed mode) architecture in the form of Taqq and Deji-i-Dewari from the last two centuries. Taqq and Dhajji-Dewari architecture reflects seismic risk reduction to earthquake threat through the use of timber-braced frame with masonry infill. Sporadic occurrence of earthquakes in Kashmir over the centuries led Kashmir society to learn that to fight earthquakes we ought to know them: how they cause damage, where they occur repeatedly and more importantly how to minimize the seismic risk. This seismic risk reduction was necessitated by available technology, resource use option and risk management strategies. Even the dialectics often reflects how the people were influenced by the seismicity of the region they lived in.

Key words: Seismic Architecture; Kashmir History; Dhajji-Dewari Taqq; Risk Reduction

1. Introduction

Over the past few decades, considerable amount of knowledge has been accumulated on how humans perceive hazards. The human perception of hazards is closely linked to the adjustment people make to them. The variety of hazards make the devising of strategies for risk reduction more variant; and the process of adjustment is influenced by individual personality, culture and physical environment [1]. In this context, earth and climate scientists and engineers tend to focus on monitoring, predicting and calculating probabilities and parameters of extreme natural hazards [2]; while as, social scientists are interested in how people and societies perceive the potential danger and how they adjust to possible threats [see for the review 3,4,1,5]. Individuals and societies said to have a low perception of risk allegedly adjust poorly to possible risks [2]. People and communities considered to have high risk perception are assumed to adjust well to natural hazards [4,6,7,8]. This ability to adjust and adapt reflects resource use options and risk management strategies to prepare for, avoid or moderate, and recover from exposure effects [9]. It is essentially synonymous with human occupance as used by Robert Kates [3]; or normalization of threat as described by Gregory Bankoff [5]; and is influenced by the characteristics of the human system including social institution, experience with previous risk, the range of technologies available for adaptation and adjustment [10]. Earthquakes are an excellent case in point. There has been a great amount of risk perception among the residents of seismically active areas [see for the review 5,3,11,12]; and in turn humans seek to adjust to damages by planning for them in order to minimize damage through structural adaptation rather evacuation remains the normal precautionary measure [3]. Kashmir was not immune to such practices in the past and the archival records provide us enough evidence that seismic requirements in buildings and care in construction to reduce seismic risk were in force in Kashmir Valley during historical times. Consequently, seismic perspective has made evident how causal earthquakes have been responsible in bringing about cultural transformation. Present study explores the seismicity of Kashmir thereby providing an opportunity to study the influence on the evolution of indigenous architecture of Kashmir over the centuries.

2. Seismicity of Kashmir Valley

Seismicity in the Himalayan region predominantly results from collision of the Indian and Eurasian plates, which are converging at a relative rate of 40-50 mm/yr [13]. Apart from increased stresses in the NW-SE loop of the Hazara-Kashmir Syntaxis (HKS), caused by the M_W 7.6 2005 Kashmir earthquake [14,15,16,17,18]; several severe earthquakes have also been reported to have occurred in this region in the preceding 1000 years, most notably in 1501, 1555, 1669,