PUBLICATIONS AND BOOKS/BOOK CHAPTERS

Title	Author	UGC referred or Not	Name of Journal
Towards Preservation of Kashmir's Historical Ecology: Role of Transferable Development Rights [TDR] in Reorienting Urban Growth.	Mr. Qazi Qamar Iqbal Qari	UGC-CARE List Group II (Scopus Only)	Migration Letters
Vanishing Alpine Meadows: Developmental Pressures of Tourism February 2018.	Mr. Qazi Qamar Iqbal Qari		ISBN – 9788192031514 Book Chapter, Book Titled: Environmental Remediation and Rejuvenation – Principles, Processes and Practices
Gated Communities October 2020.	Mr. Qazi Qamar Iqbal Qari		ISBN – 9788194821144 Book Chapter, Book Titled: Urban Development – Philosophies, Principles and Practices.
Landscape in Translation: Kashmir of Zain al-Abidin.	Mr. Mehran Qureshi		LA Journal ISSN 0975-0177
Street and Pavement Infrastructure: Occupy Well Street.	Mr. Mehran Qureshi		The LSE Cities ISSN 2059-2116
The Art of Book in Early Modern Kashmir: A case of illuminated manuscript of Diwan-i Hafiz.	Mr. Mehran Qureshi		The Routledge Companion to Global Renaissance Art, Taylor & Francis, 300-315/2024
Book review of Solitudo: Spaces, Places, and Times of Solitude in Medieval and Early Modern Cultures.	Mr. Mehran Qureshi		Published in Reading Religion, a journal of the American Academy of Religion, 2018
Re-Imagining Urban Voids, Reimagining Srinagar through the frame of Hari Parbat.	Mr. Hakim Danish		Council of Architecture(COA) through COA-TRC Pune |
Comparative Strength analysis of concrete by partial replacement of sand with basic oxygen furnace slag"	Mr. Musawir Quadir		IJERT, Volume-5, Issue-9, September-2016.
Flexural Strength of Concrete by Partial Replacement of Sand with Basic Oxygen Furnace Slag, Research & Reviews: Journal of Engineering and Technology	Mr. Musawir Quadir		e-ISSN:2319-9873, RRJET | Volume 7 | Issue 2 | March, 2018.
Stabilization of clayey soil with polypropylene waste	Mr. Musawir Quadir		Volume-9, Issue-1, January-2018 in IJRDT.
Effect of partial replacement of cement with blast furnace slag and sand with cast iron chips, on strength of concrete	Mr. Musawir Quadir		IJERT, Volume-5, Issue-10, October-2016.
Exploratory Study of Machine Crushed Over Burnt Brick as Coarse Aggregate in Concrete Hollow Blocks"	Mr. Musawir Quadir		IJERT, Volume. 6, Issue. 02, February – 2017.
Comparative flexural strength of concrete by partial replacement of sand with basic oxygen furnace slag" JK Journal of Architecture and Engineering Sciences	Mr. Musawir Quadir		Volume-1,Issue-1,April 2018(jkhighereducation.nic.in).

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Towards Preservation Of Kashmir's Historical Ecology: Role Of Transferable Development Rights [TDR] In Reorienting Urban Growth

Qazi Qamar Iqbal Qari[1]*

Abstract:

The valley of Kashmir possesses unique features in terms of ecological sensitivities and heritage values. It is a valley enclosed by mountain systems on all sides with limited passes which ensured the limited interaction with the outside world in the past. However, given the developmental pressures of rapid urbanization of the contemporary era, the valley is facing challenges in preserving its environment and heritage. With an unprecedented loss of built and natural heritage in the last couple of decades, new ways shall be adopted to check the loss and make ways for a holistic policy framework where the local stakeholders shall be given a share of benefits along with the responsibilities for the protection of heritage and environment of the valley. This paper will explore the prospectus and methods of Transferable Development Rights as a policy framework for the protection of the environment and heritage of the valley.

Keywords: *Transferable development rights, Heritage, Environment, Urban Sprawl.*

Background:

The valley of Kashmir lies in the UT of Jammu and Kashmir in the Northern region of India. Surrounded by the Greater Himalayas on the northeast and the Pir Panjal range on the southwest, the valley is enclosed on all sides by the Himalayan Mountain ranges with only a few geographical passes allowing access to the valley. The valley has been accessible through Zoji-la Pass from the regions of Ladakh and Tibet, Pir Panjal Pass through the regions of mainland India via Rajouri – Poonch and Punjab, Banihal Pass through the region of Jammu, Sinthan Pass through the region of Kishtwar and a Pass through Uri gorge for accessibility to the region of Muzaffarabad. The valley has been an important centre of learning and knowledge throughout its history owing to its strategic geographic location on the Silk-route and with a setting of natural defence system by the mountain ranges and the climate systems, it has remained impregnable to invasions in its history leading to the flourishment of high culture in medieval times. Adapting to the cultures of mainland India, Central Asia, Persia and Tibet, the inevitable evolution of syncretic traditions is evident in its vernacular built heritage, which is also a reflection of its geo-morphological exclusiveness. The mention of 12-storeyed wooden houses by Kalhana in Rajtarangini in ancient times is one of the many citations of architectural opulence achieved by the civilization of the valley. However, the present-day built heritage is reflective of the heights achieved in architecture through the medieval ages where Sultan Zainul Abideen of the Shahmiri dynasty (15th century AD) has been known to be a great patron of arts and developmental works for the welfare state of Kashmir. The valley of Kashmir, often referred to as the Switzerland of the East, is abode to some of the most aesthetically pleasing Himalayan landscapes. Composed of the lacustrine bed surrounded by towering peaks, the valley can be categorized into four distinct geomorphological features, viz., the mountain systems, the karewas, the wetland systems and the riverine systems. Each of these systems presents unique ecological sensitivities and characters but together they are responsible for the shaping of life in the valley of Kashmir.

[1]* Associate professor, Islamic University of Science and Technology, Awantipora, J&K

Vanishing Alpine Meadows: Developmental Pressures of Tourism

Qazi Qamar Iqbal Qari
arqamariqbal@gmail.com

Abstract - **Alpine meadows are an important part of the alpine ecosystems for the sustainability of certain flora and fauna endemic to such ecosystems. Such meadows have long been enjoyed by the mankind for recreational and leisure activities and the tourist influx to these meadows has ever been increasing which in turn leads to anthropogenic pressures on these meadows. One of the considerable issues is in the form of developmental pressures created to accommodate the tourism in these meadows. These pressures have caused alpine meadows to shrink considerably and pose a challenge to its sustainability. This paper presents an insight on how mankind has encroached upon such alpine meadows surrounding the valley of Kashmir in the Himalayan region in the name of leisure and recreation without giving the due consideration to the existence and fragility of such meadows and how mankind can enjoy such meadows while not compromising on their sustainability by means of encroachment.**

Index Terms – alpine meadow, tourism, degradation, encroachment

ALPINE MEADOWS

Alpine meadows are the open areas in the otherwise densely planted forests of mountain ranges and are located higher up the slopes nearer to the tree line. These are the grasslands favourable to perennial grasses and low shrubs that restrict the growth of woody plants indefinitely. Alpine ecosystems including alpine meadows occur at high altitudes above the tree line or sometimes are referred to sub-alpine ecosystems below the tree line and are subject to harsh climatic conditions. The dominant plant species in these meadows are grasses in association with herbs, sedges and forbs, but with few shrubs and practically no trees. Usually in the shape of a bowl, a valley or a small table land, these meadows are ecologically fragile fragments of the alpine ecosystem. Meadows are a very important part of the alpine ecosystems as they receive most of the sunlight because of lack of tree cover. This factor attracts and supports flora and fauna that could not thrive in these alpine ecosystems otherwise. These meadows support a wide array of wild flowers, which makes them of utmost importance to pollinating insects like bees, etc. They also provide areas for nesting, displays and courtship to a multitude of fauna. Alpine meadows occur at high altitudes which makes the climate at these meadows colder, a characteristic described by the lapse rate of air: air tends to get colder as it rises since it expands. The temperature usually varies from -15°C in winters to +15°C in summers. Winters in alpine ecosystems tend to be long and cold, and summers are mild and short. These meadows represent the natural state and are largely maintained by livestock grazing and forest fires. Alpine meadows are an extremely vital part of the alpine ecosystems since they host a wide range of wildlife including grazing and roaming animals. They also provide the diversity from which wild crops can continue to be domesticated into agriculturally suitable crops.

THREAT TO ALPINE MEADOWS

Alpine meadows are ecologically fragile habitats and are much under pressure from various factors, described further, which pose a risk to the existence of their flora and fauna, some of which are the threatened species of the wildlife. These threats include and are not only restricted to anthropogenic pressures, grazing pressures, habitat fragmentation, proliferation of invasive species, impact of climate change and human development. The biodiversity loss leads to soil loss through erosion. The high altitudes for these meadows also facilitates high velocity winds and heavy downpours which become main factors for erosion once the habitat loss for endemic species of flora occurs.

The habitat loss can also be a consequence of overgrazing by domesticated grazing animals. The agricultural practices of people native to surroundings of these alpine meadows mainly depend on the livestock which include cattle and sheep. These animals tend to eat grasses faster than the plants can grow. Livestock farming is also carried out by various nomadic tribes and these meadows are an important part of their migration routes. They often travel with very large flock sizes across mountains and these alpine and sub-alpine meadows are grazing grounds for their cattle. Overgrazing destroys habitat for native species and pollutes waterways with runoff and silt as soil is washed away. Such destruction of vegetation can also lead to replacement of native floral species by weedy non-native species which have often proved to be invasive in nature. This further leads to habitat fragmentation in these meadows.

Alpine grasslands are mainly sustained by glaciers and rainfall pattern of the alpine tundra. The vulnerability of alpine meadows is hugely increased by the shrinking of glaciers which is caused by climate changes in response to human involvement. Changes in temperature due to global warming has a direct impact on precipitation and soil

Gated Communities

Qazi Qamar Iqbal Qari
School of Architecture - Kashmir, arqamariqbal@gmail.com

ABSTRACT

The proliferation of Gated Communities in the modern urban fabric is alarming, though the rationale for them is mostly cited as safety and security, but these communities are a new challenge to the urban sustainability. From physical segregation of areas to threatening of social cohesiveness, influencing politics to economic instability, these communities of lifestyle are dominating and changing the face of habitat that man has always yearned for. Though these communities initially started mushrooming in the developed nations, but now with the rapid urbanisation, they have reached the cities of developing countries as well. Hence, a need for analyzing the vitality of causes of growth of these communities and their consequences on the modern urban fabric was felt that motivated me to take up 'Gated Communities' for my research topic.

INTRODUCTION

Gated communities are an age old phenomenon, almost as old as the history of human settlement. Gated communities are the physical areas which are properly fenced or walled from the surroundings, prohibiting the free accessibility and are controlled by gates. They have become a global phenomenon, existing in different forms in various countries; however the similarities, the difference is prominent in developed countries and developing countries. There is no common agreement on a definition or meaning of gated communities. It is accepted that there are different types of gated communities in different countries, resulting in a multitude of interpretations regarding types and

Mehran Qureshi, Faculty at Department of Architecture, IUST, Awantipora, Srinagar
| mehranqureshi@iust.ac.in

LANDSCAPE IN TRANSLATION
KASHMIR OF ZAIN AL-ABIDIN

In the history of Kashmir, the 14th and 15th centuries may be looked at as a period of transition, wherein the new social and political formation was negotiating its unique identity seeking inspiration from the existing sacred traditions and cultural imaginations. ***Mehran Qureshi*** cites examples of spatial design and planning from the times of Zain al-abidin, a ruler from Shahmiri Sutanate [14th-15th century] that laid the foundation of Muslim rule in the region.

"It is the task of the translator to release in his own language that pure language that is under the spell of another, to liberate the language imprisoned in a work in his re-creation of that work."

— **Walter Benjamin,** ***The Task of the Translator***

Kashmir, since antiquity, has been imagined and celebrated as a valley of mythical and mystical landscape, venerated by locals as sacred and coveted by outsiders as a paradise. The sacred geography of both Buddhism and Hinduism in Kashmir, towards the closure of fourteenth century, was inherited by the nascent Shahmiri Sultanate [est. 1339 CE], that was trying for the first time in Kashmir, to establish their sovereignty within the framework of Islam and its Persianate political and cultural ethos. The period of early Shahmiri Sultans, particularly the rule of Zain al-abidin, therefore, is not only a period of transition, but also a moment of synthesis, where a new Muslim culture takes root in Kashmir while also negotiating its similarity and difference vis-à-vis the cultural forms and spiritual practices of Buddhism and Shaivism.

Street and Pavement Infrastructure: Occupy Well Street

Project Team: Megan Groth, Daphne Lee, Mehran Qureshi, Maria Elena Rioseco Zenteno

The Urban Context of Creative Economies: From Global Discourse to Local Hackney

The global popularity of employing 'creativity' as an urban-economic strategy has heralded a creative urban age. Cities worldwide are heeding Landry's 'Creative City' concept of harnessing local creative potentials for economic revitalisation; or replicating Florida's 'Creative Class' thesis of place-making to attract highly-skilled creative workers, who are the magnets for knowledge-intensive and creative industries fostering growth. 1 | The UK has also become a renowned model, particularly London, as it was where creative industries as an economic policy and valued sector first emerged with the 'Creative Industries Task Force' created in 1998. 2 |

Be it a policy emphasis on the organisational culture of city-making, consumption services or production industries, the synergetic relationship means these creative discourses generally favour particular urban locales, entrepreneurial practices and the 'creative class', thereby producing spatial, social and economic inequalities. "Creative advantage presupposes creative disadvantage", which can play out as uneven opportunities amongst cities but also at a more localised, intra-urban level. 3 |

Within London, Hackney borough extensively pursues a 'Creative Hackney' agenda which we have identified as a cause of inequalities and imbalanced power dynamics on Mare Street – best exemplified by the intersections of Westgate Street and Well Street. 4 | Just 250 metres away from each other, they represent two different lifeworlds. Westgate Street sits proximately to the trendy Broadway Market and railway arches, and is surrounded by a growing cluster of creative studios, design offices and artistic pop-ups, along with upmarket café-restaurants to serve the creative workers. On the other hand, the long-established, everyday neighbourhood of Well Street is close to social housing estates and is linguistically and ethnically diverse, providing 'ordinary' domestic services to a large, lower-income population.

Our concern is that council support for creative class, enterprises and workspaces overlooks or undermines existing, ordinary businesses and communities. As a result, these areas are either left out of economic regeneration or being subsumed into a 'creative' make-over that erases the social diversity of Hackney. Our project thus aims to critique and address the uneven dynamics of creative regeneration manifested on Mare Street, by strengthening the presence/representation of the ordinary Well Street cluster. In doing so, we hope to empower traders and users of Well Street in making

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4.5

THE ART OF THE BOOK IN EARLY MODERN KASHMIR

The Case of an Illuminated Manuscript of *Dīwān-i Ḥāfiẓ*

Hakim Sameer Hamdani and Mehran Qureshi

In 1752 CE, as the Mughal empire was unravelling across the vast territories it had once ruled in South Asia, it also lost control of its northernmost *ṣubah* (province), the Himalayan valley of Kashmir. For more than two centuries beginning with the collapse of the Kashmiri Sultanate (1339–1586 CE) to the invading armies of the fourth Mughal emperor Jalāl-al Dīn Akbar (r. 1556–1605 CE), the land had remained a prized possession of the Mughals. Following the conquest, for much of the sixteenth and seventeenth centuries, Kashmir emerged as a preferred visiting place for Mughal emperors as well as their entourages, comprising members of the imperial household and nobility. Despite the hazardous and time-consuming journey across treacherous mountainous passes connecting Kashmir with the imperial cities of Lahore, Delhi and Agra in the plains, this was a much-anticipated journey for the court.[1] The Mughal engagement with Kashmir was posited on imagining the land as a terrestrial paradise-*firdous*.[2]

Since antiquity, Hindu and Buddhist spiritual traditions of Kashmir had made its landscape a source and site of myth and mysticism. In the fourteenth century, Shahmiris sultans and, later in the sixteenth century, Mughals inherited the same obsession with the landscape of Kashmir. Aside from the emperor's family, members of the court, the *umara*, the poets and the artists would in turn reinforce this narrative of *firdous* in their engagement with the land, both in literature and in architecture. The pervading sentiment remained of celebrating the natural beauty of Kashmir. Akbar's successor, Emperor Jahāngīr (r. 1605–1627 CE) in his autobiography *Jahāngīrnāma* captures the essence of this Mughal fascination:

> Kashmir is a perennial garden and an ironclad bastion. For monarchs it is a garden that delights the eye, and for poor people it is an enjoyable place of retreat. Its lovely meadows and beautiful waterfalls are beyond description. Its flowing waters and springs are beyond number. As far as the eye can see there is greenery and running water. Red roses, violets, and narcissi grow wild, there are fields after fields of all kinds of flowers,—and the varieties of herbs are too many to count. During the enchanting spring, mountain and plain are filled with all sorts of blossoms—gateways, walls, court-yards, and roofs of houses come ablaze with tulips. What can be said of the plateaus covered with refreshing clover?[3]

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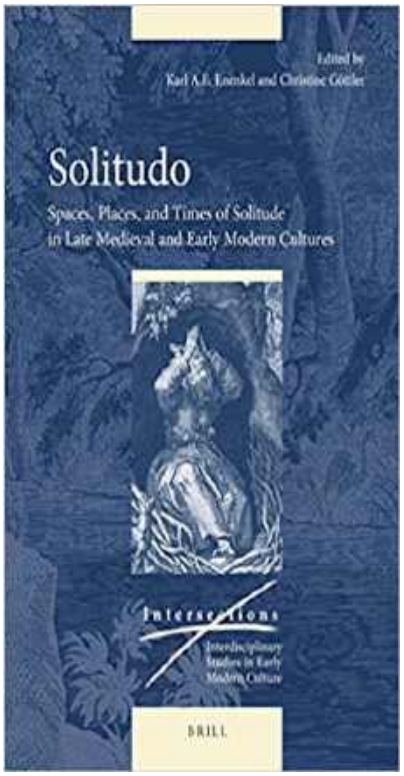

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Solitudo

Spaces, Places, and Times of Solitude in Medieval and Early Modern Cultures

Editor(s): Karl A. E. Enekel, Christine Göttler

Intersections

Boston, MA: Brill, May 2018. $198.00. E-Book. ISBN 9789004349926.
For other formats: Link to Publisher's Website.

Review

Various chapters of *Solitudo*, edited by Karl A.E. Enenkel and Christine Göttler, chart the destiny of the idea of solitude as it was practiced, expressed, and articulated in the late medieval and early modern periods. Writing and reading, poetry and painting, meditating and praying were practices that came to invest the places and spaces of solitude with meaning. The book, therefore, is also an interesting introduction to the history of "imageries and imaginaries" (17) of solitude, about its genesis in antiquity, rediscovery and appropriation in the middle ages and its transformation up to the early modern period.

Gottler's introductory chapter succinctly summarizes various sections and individual chapters of the book. The discussion of the drawings of St. William of Malavalle by an unknown Netherlandish artist of the 16th century offers a conceptual preview of the subsequent chapters. The drawings attempt a unique framing of the desert or wilderness landscapes against the distant town or city. This framing of distance itself reveals the tension within the space of solitude with respect to the inhabited world of culture.

Furthermore, the chapter discusses with much insight and brilliance the far-reaching consequences of the rediscovery of patristic solitude in the artistic, literary, and scientific imagination of the late medieval period. The drawings by this anonymous artist are speculated to be belonging to the period when the stories and artworks related to the Desert Fathers were enjoying popularity in the Netherlands and the nearby German speaking areas. This obsession with the themes of solitude in the lives of Desert Fathers would significantly influence the renaissance culture of Europe as discussed in chapter 9 of the book. The artists of the time, Durer and Bellini among many others, imbibed the very notion of patristic solitude into their artistic practice. The journey of a solitary spirit in the desert or wilderness corresponded to the lines drawn by the artist on paper (5). Subsequent chapters in the book, while discussing various aspects of the late medieval cultures of solitude, frame them against the solitary habitus of early Christian fathers and Greco-Roman antiquity.

I shall approach this book's content by way of a few theoretical vantage points. One interesting conceptual framing of the content of the book may be Western European inheritance of solitude in its classical and ecclesiastical articulations. Chapters 2 and 3 on Petrarch and Cornelius Musius, respectively, are insightful in bringing out this dual orientation and spatiality of their sacred solitude. Whereas Petrarch presents his solitary life modelled upon the artists and writers of Greece and Rome, Musius embodies a properly Christian monastic attitude towards the world. Petrarch's *De Vita Solitaria* is a literary construction, conjuring a habitus the contours and features of which are borrowed from the histories and mythologies of classical antiquity (41). The ideal place for Petrarch to cultivate solitude and seek creative inspiration is under the open sky of nature, away from the corruption and crowd of the courts and the cities.

Despite appropriating biblical motifs in his book, Petrarch is evidently more faithful to the spirit of his classical progenitors. Musius, on the other hand, is thoroughly Christian, despite being well versed in the classics. The chapter on Musius embarks upon a critical and in-depth reading of his poem *Vita Solitaria*. The poem, the author argues, must be read in context of the transformations that the Low Countries were subjected to in the middle and

later part of the 16th century. The said time period saw the culmination of effects of Luther's and Calvin's criticism of monasticism and intensification of iconoclasm in which numerous monasteries were destroyed and looted. The literary work of Musius, therefore, is read and interpreted as a form of resistance against the anti-monastic reformation and celebration of the space of *Vita Monastica*: a solitary life modelled on the early figures of Christian monasticism. The notions of solitude in the late medieval period were thus intricately shaped by both classical and biblical traditions. Leo Strauss described Western civilization as coming together of Athens and Jerusalem, of Greek thought and biblical faith.

The late medieval period, according to the book, however, also witnesses a subtle transformation in the experience of solitude. The ascetic solitude of the desert fathers is already accepted, practiced, and enacted in the heart of human settlements and societies via the medium of art. Chapter 12, for instance, discusses how the studio of da Montefeltro at Urbino, invokes the solitude of the Petrarchian variety, by putting the owner (a bibliophile and a patron of arts) in conversation with the portraits of the great spirits of antiquity, long dead.

Moreover, the set-up of such a studio—its interior decoration, illumination, portrait gallery—the author argues, is an exercise in self-portrayal. The portrayal already assumes a spectator. This "externalization" in the long run will be definitive of the visual cultures of modernity. With the onset of early modernity, the strict desert solitude of antiquity, using the crutches of art and architecture, becomes a solitude of engagement, a solitude of sociability (406). Such a transformation is better elucidated in chapter 13 of this book, in which the author attempts to trace the genealogy of the institution of modern museum back to the Roman villa via the hermitages of early modern period. The act of contemplation, which was at the heart of solitary life in antiquity, is now enacted in public, as the distinction between the spatiality of villas and hermitages is blurred. The villas and hermitages of the late medieval period have already become repositories of art and opened their gates to the public. The proto-museum has arrived on the scene.

One cannot help but notice this transformation as desacralization and secularization of solitude effectively mediated by art. This volume, or at least its theoretical underpinning, has much to say to us who are modern and far removed from the "solitudes" of antiquity and middle ages. Our contemporary life, despite the mass culture and digital connectivity, is after all much inclined towards the solitude of screen time. A different solitude, but solitude nonetheless.

This edited volume is indispensable for anyone pursuing research in the formation of the cultures of modernity. The students of the history of culture, literature, art, and architecture of late medieval and early modern period of the West will equally find this book an important addition to their resources.

About the Reviewer(s):
Mehran Qureshi is an Independent Scholar and architect by training.

Date of Review:
October 1, 2020

About the Author(s)/Editor(s)/Translator(s):
Karl A. E. Enekel is Professor of Philosophy at the University of Münster.

Christine Göttler is Professor of Art History at the University of Bern.

Comments

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RE - IMAGINING URBAN VOIDS

Tactical Intervention - 4

Reimagining Srinagar through the frame of Hari Parbat

Name of the Institute

Department of Architecture, IUST Awantipora, Jammu & Kashmir

Site Location

Rainawari, Srinagar,

Jammu & Kashmir, India

India
Map Not to scale.

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Comparative Strength Analysis of Concrete by Partial Replacement of Sand with Basic Oxygen Furnace Slag

Musawir Quadir
Department of Civil Engineering
Surya World College of Engg. and Tech.
Rajpura, INDIA

Divya Diwaker
Department of Civil Engineering
Surya World College of Engg. and Tech.
Rajpura, INDIA

Irfan Ali Banka
Department of Civil Engineering
Ram Devi Jindal Faculty of Engg. and Tech.
Derabassi, INDIA

***Abstract*— Environmental pollution is one of the major concerns of all the environment related departments. Industrialization is at culmination, releasing millions of tones of wastes & by-products every day, thereby producing a great threat to the environment existing living creatures of the universe. So it is the dire need of the hour to tackle with such problems, in a technical manner so that the hazards of these wastes will be reduced to minimum extent. As far Basic oxygen furnace slag is concerned, it is considered to be a waste materials & is thrown unused .In this present research work we are going to bring such a said waste in use, this will not only increase the practical utility of this product but also will make the concrete mixes economical & will reduce the threat of environment by being polluted by wastes like Basic oxygen furnace slag. In this study the fine aggregates were partially replaced with Basic oxygen furnace Slag with different proportions by weight i.e., 15%, 25%, 35% of Basic oxygen furnace Slag Compressive strength on M-25 grade of concrete at 0.46 water cement ratio was investigated. The results thus found from performed tests were compared with conventional concrete. The results revealed that the use of Basic oxygen furnace Slag up to a certain percentage enhances the strength of concrete.**

Keywords*— *Basic oxygen furnace Slag, water cement ratio, Compressive strength, concrete.'

I INTRODUCTION

Basic Oxygen Furnace slag is formed during the conversion of hot metal from the blast furnace into steel in a basic oxygen furnace. In this process the hot metal is treated by blowing oxygen to remove carbon and other elements that have a high affinity to oxygen. The slag is generated by the addition of fluxes, such as lime [stone] and dolomite that combine with silicates and oxides to form liquid slag. Some amounts of scrap are also added in order to control the temperature of the exothermal reactions.

When the reaction process is complete, molten crude steel collects on the bottom of the furnace and the liquid slag floats on top of it. The crude steel and the slag are tapped into separate ladles/pots at temperatures typically above 1600°C. After tapping, the liquid slag in the pot can further be treated by injection of SiO_2 and oxygen in order to increase volume stability. The molten slag is then poured into pits or ground bays where it air-cools under controlled conditions forming crystalline slag. In order to adjust the required technical properties for a specific use, different measures like weathering, crushing and sieving are performed on the crystalline slag. The composition of basic oxygen furnace slag is presented in Table:1

Table : 1 - Composition of Basic Oxygen Furnace Slag

Element	Weight%	Atomic%
C	8.85	15.87
O	44.29	59.63
Mg	0.44	0.39
Al	8.57	6.84
Si	6.15	4.72
Ca	0.79	0.42
Ti	0.64	0.29
Cr	4.24	1.76
Mn	6.10	2.39
Fe	19.92	7.68

II MATERIALS USED

A Cement

Ordinary Portland Cement of 43 grade was used throughout the investigation. The cement was available in the local market Ambala City and kept in dry location. The tests were conducted to determine the properties of cement. Table: 2 shows the physical properties of Ordinary Portland Cement which were evaluated from the experimental work.

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Stabilization of clayey soil with polypropylene waste

Musawir Quadir[1]
[1]Assistant Professor at School of Architecture, AAAM Degree College Bemina (Cluster University Srinagar Kashmir)

Abstract :This research paper evaluates the use of waste fiber material such as polypropylene fiber for the modification of clayey soils. This investigation is centered on the shear strength and unconfined compressive strength of the reinforced soils with randomly included waste fiber materials. The unreinforced soils were subjected to specific gravity test, particle size distribution, Atterberg's limits, proctor compaction, shear strength test and unconfined compression test to determine the geotechnical properties. However, for the reinforced soil were subjected to direct shear test and unconfined compression test in order to differentiate the shear strength with unreinforced soil. These waste fibers improve the strength properties of clayey soils. The maximum shear stress value enhanced with increasing percentage of polypropylene fiber and reached at optimum content on 0.3% reinforcement where it showed the highest improvement of 0.537 kg/cm² from 0.440 kg/cm² and depleted when reach 1.0% reinforcement. The polypropylene fibers can be successfully used as reinforcement materials for the modification of clayey soils.

Keywords: Polypropylene, compression, clayey, reinforcement, strength, stabilizer

INTRODUCTION

Polypropylene (PP) is basically used in the industries, to produce the variety of applications including packaging and labeling, textiles (e.g. ropes, carpets etc.), stationery, plastic parts, laboratory equipments etc. After the life span or use it is dumped anywhere as a waste that causes a disposal problem to environment because of its properties of non-biodegradability. Most of the Polypropylene (PP) waste are not being recycled and directly disposes to landfills. If this waste converted into soil stabilizer after the recycling or grinding will results into the solution of disposal problem and reduces the supply of raw materials for construction [1-3].

MATERIALS USED

In this section a brief discussion is done on the material used in this work. Various tests performed on this material are also discussed.

Clayey Soil

In order to study the behavior of clayey soil with different stabilizers a sample of clayey sub-grade soil is collected from Village Mohri, District Kurukshetra, State Haryana.

PP (polypropylene) fiber

Investigations were made on polypropylene taken from Aashirwad enterprises, Ambala. The strength parameters of PP-Fibre as following:

Table :1- Index and strength parameters of PP-Fiber

Index and strength parameters of PP-fiber		
Serial number	**Behavior parameters**	**Values**
1	Fiber type	Single fiber
2	Unit weight/Sp. gravity	0.91g/cm^3
3	Average diameter	0.034mm
4	Average length	12mm

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Exploratory Study of Machine Crushed Over Burnt Brick as Coarse Aggregate in Concrete Hollow Blocks

Sajid Saleem
Department of Civil Engineering
Surya World College of Engg. and Tech.
Rajpura, INDIA

Dr. Rajesh Goyal
Principal & professor
Modern institute of Engg.&Tech.
Kurukshetra, India

Musawir Quadir
Department of Civil Engineering
Ram Devi Jindal Faculty of Engg.&Tech.
Mohali, India.

***Abstract*—The main objective of the study is to explore and assess the possibility of using crushed over burnt brick aggregate (industrial waste) as an alternative for the costly conventional stone aggregate in concrete hollow blocks (masonry in fills) to reduce their production cost, construction cost, and in addition dead weight of a building structure. The study has been carried out at 0%,20%, 40%,60%,70%, 80% and 100% replacement levels of normal crushed stone aggregate with crushed over burnt brick aggregate by Arbitrary standards method. Cube specimens of sizes 150mm with different percentages by weight of normal stone aggregate to over burnt brick aggregate were casted and tested after 7 & 28 days. Whereas hollow block specimens of size 200×200×150mm were tested only after 28 days, as per IS standards. For the purpose of current study, batching operation by weight approach (Arbitrary standards method) has been adopted. Nominal mix of 1:8 (1 cement: 8 combined aggregates) or 1: 4: 4 has been investigated with water/cement ratio of 0.55. The constituents used in the mix were Portland pozzolana Cement (PPC) with 25% fly ash, fine aggregate (natural sand), coarse aggregates (locally available crushed stone aggregates 10 mm maximum size) and (crushed Over burnt brick aggregate of 10 mm maximum size), and potable water as per IS 456-2000.Comparative study among strengths of mixes, prepared at different replacement levels reveled that, crushed Over burnt brick aggregates can be confidently used upto 69% replacement level of normal crushed stone aggregate with crushed over burnt brick aggregate, with compromising with strength**.

***Keywords*— Cube, Hollow blocks, water cement ratio, aggregates, Compressive strength, burnt brick aggregate, concrete.**

I. INTRODUCTION

Concrete hollow block is one of the most important developments in concrete masonry and it is widely used for both load bearing and non-load bearing masonry construction. It is made of cement and sand mix or concrete mix with dense or lightweight aggregates. It is an effective means of utilizing wastes generated by stone crushers, quarrying and stone processing units and other industries. The technology has high potential in areas where raw materials are easily available. The Concrete Block Technology package is a highly profitable business for micro and small scale building material producers and construction companies.

A. Appearance

Concrete blocks have a light grey concrete colour, and on close inspection may show a granular texture depending on the type of aggregate used. Machine production provides even finish which offers savings on further cement plaster etc. Concrete blocks can be surface engineered by using pieces of stone or ceramic waste on their face.

B. Thermal properties

Concrete blocks have an excellent thermal property, comparable to other masonry units. The cavities in the blocks provide better thermal protection and also do not need external or internal plastering. The performance of these blocks increases with the increase in the number of hollow cores, which may or may not be filled in with some insulating materials.

C. Sound insulation

Concrete hollow blocks provide an acceptable degree of sound insulation. Insulation of concrete hollow blocks can further be improved by filling the cavities with an insulating material.

II MATERIALS USED

A. over burnt brick aggregate.

Over burnt brick aggregate can be considered as a good material suitable for plain concrete works as well as for reinforced works where stresses are not very high. Brick aggregate should be saturated with water before use to avoid absorption of the mixing water which is necessary for the hydration of cement and for the setting and hardening of the concrete. Brick aggregate is more fire resistant and sound absorbent than crushed stone aggregate.

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Effect of Partial Replacement of Cement with Blast Furnace Slag and Sand with Cast Iron Chips on the Strength of Concrete

Er. Nalin Verma
Department of Civil Engineering
Ramgarhia Institute of Engg. and Tech.
Phagwara, INDIA

Er. Arun Verma
Department of Civil Engineering
Ramgarhia Institute of Engg. and Tech.
Phagwara, INDIA

Er. Rajwinder Singh Bansal
Department of Civil Engineering
Ramgarhia Institute of Engg. and Tech
Phagwara, INDIA

Er. Musawir Quadir
Department of Civil Engineering
Surya World College of Engg. and Tech.
Rajpura, INDIA

***Abstract*— Environmental pollution is one of the major concerns of all the environment related departments. Industrialization is at peak, releasing billions of tones of wastes & byproducts every day, thereby producing a great threat to the existing living creatures of the universe. So it is the dire need of the hour to tackle with such problems, in a technical manner so that the hazards of these wastes will be reduced to minimum extent. As far Blast furnace slag & Cast Iron Chips are concerned they were considered to be as waste materials & were thrown unused. In this present research work we are going to bring such said wastes in, this will not only increase the practical utility of these products but also will make the concrete mixes economical & will reduce the threat of environment by being polluted by such wastes. In the present study firstly we will fabricate Mix A i.e., M-20 grade of concrete, with 0.5 water cement ratio & secondly we will prepare concrete mixes first by partially replacing the fine aggregates with cast iron chips, by weight. The range of replacement of fine aggregates varies as 10%, 20% & 30% respectively & such mixes are named as Mix B, Mix C & Mix D respectively. In the second context we are replacing cement with Blast Furnace Slag, but the percentage of Cast Iron Chips remains the same i.e., 30%. Here the levels of replacement will remain the same as in previous case i.e., 10%, 20% & 30%. So Mix E is composed of 30% by weight of Cast Iron Chips (replacement of sand by weight =30% with Cast Iron Chips), 10% by weight of Blast Furnace Slag & other ingredients of concrete. Mix F is composed of 30% by weight of Cast Iron Chips (replacement of sand by weight =30% with Cast Iron Chips), 20% by weight of Blast Furnace Slag, with 20% replacement of cement & rest of the constituents remaining the same. Mix G will be the composition of 30% by weight of Cast Iron Chips (replacement of sand by weight = 30% with Cast Iron Chips), 30% by weight of Blast Furnace Slag, replacing 30% of cement in the mix. The results recommend the use of Cast Iron Chips in concrete instead of sand & use of Blast Furnace Slag instead of cement as well , up to certain level of replacement& improves the compressive strength of concrete mixes fabricated by bringing such wastes in use.**

Keywords*— Blast Furnace Slag, Cast Iron Chips, water cement ratio, Compressive strength, concrete.

I INTRODUCTION

A blast furnace is a type of metallurgical furnace that is used to produce a metal from its ore. In the iron making process, blast furnace is continuously charged with iron bearing materials in the form of iron ore lumps, fluxing agents such as limestone and coke from the top of the furnace as a fuel and reducing agent in the production of iron. From the iron ore and the added fluxing agents like coke and limestone, molten iron and slag is formed. Oxygen in the preheated air blown into the furnace combines with the carbon of the coke to produce the needed heat and carbon monoxide. At the same time, the iron ore is reduced to iron, mainly through the dioxide. The oxides of calcium and magnesium combine with silica and alumina to form slag. The reaction of the carbon monoxide with the iron oxide yields carbon dioxide (CO_2) and metallic iron. The fluxing agents dissociate into calcium and magnesium oxides and carbon dioxide. The oxides of calcium and magnesium combine with silica and alumina to form slag.

Table 1: Chemical Composition of Blast Furnace Slag by EDS

Element	Weight%	Atomic%
C	4.65	7.28
O	60.51	71.17
Mg	5.58	4.32
Al	3.79	2.64
Si	14.41	9.65
K	0.47	0.23
Ca	8.57	4.02
Mn	0.84	0.29
Fe	1.19	0.40
Totals	100.00	

Numerous industrial and mechanical techniques utilized for the production of mechanical goods and instruments, include turning, milling, shaping, threading, drilling etc. The chips of the material thus produced can be brought into use in a number of ways. If these mechanical devices are being

Comparative flexural strength of concrete by partial replacement of sand with basic oxygen furnace slag

Musawir Quadir

School of Architecture Kashmir, J&K, India

Abstract: This research work evaluates the use of basic oxygen furnace slag as a replacement for fine aggregates, in M-25 grade of concrete. The fine aggregates were partially replaced, by weight with Basic oxygen furnace slag. The prepared mixes were named as Mix-A, Mix-B, Mix-C and Mix-D. The mixes were prepared at 0%, 15%, 25% and 35% replacement levels respectively. All the mixes were fabricated at 0.46 water cement ratio. To study the behavior and response of beam members, casted with above said composition, in flexure, the tests performed after 7 and 28 days on beam specimens casted from control and composite mixes, were flexural strength test, density and slump test. IS standards were followed while conducting the above captioned tests. The obtained results were compared with those of controlled M-25 concrete mix.

The investigated results found, vary according to proportions of supplementary constituents added to the M-25 concrete mix. The substitution of basic oxygen furnace slag, enhances the Flexural strength of M-25 concrete mix up to certain percentage. After adding 15% basic oxygen furnace slag in the mix, there is an increase of 17.67% strength after 7 days, and 17.26% increase after 28 days. The flexural strength increase as compared to control mix as the percentage of basic oxygen furnace slag is increased. At 25% addition of basic oxygen furnace slag in the mix, there is an increase of 28.37% strength after 7 days, and 23.31% increase after 28 days. A decline in flexural strength as compared to control mix was observed when the percentage of basic oxygen furnace slag was increased to 35%. A decrease by 3.16% was observed after 7 days, and 16.42% decrease after 28 days. Slump and unit weight of thus manufactured concrete also increases with the addition of Basic oxygen furnace slag to it. Thus basic oxygen furnace slag can be successfully used in concrete, to improve flexural strength, slump values and unit weight of concrete as well.

Key words: *Basic oxygen furnace slag, concrete, fine aggregate, flexure, Portland cement*.

Introduction

Production of residues from industries and construction sector has increased during last few years. Much of these wastes have been thrown to land fill, without considering their potential for reuse and re-cycling as well. Since aggregates make about 70-80 volume of the concrete, their

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Flexural Strength of Concrete by Partial Replacement of Sand with Basic Oxygen Furnace Slag

Musawir Quadir*

School of Architecture, Jammu and Kashmir, India

Research Article

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***For Correspondence**

Musawir Quadir, Assistant Professor, School of Architecture, Jammu and Kashmir, India.

E-mail: musawiroo@gmail.com

Keywords: Oxygen furnace, Slag, Natural aggregates

ABSTRACT

This research work evaluates the use of Basic oxygen furnace slag as a replacement for fine aggregates, in M-25 grade of concrete. The fine aggregates were partially replaced, by weight with Basic oxygen furnace slag. The prepared mixes were named as Mix-A, Mix-B, Mix-C and Mix-D. The mixes were prepared at 0%, 15%, 25% and 35% replacement levels respectively. All the mixes were fabricated at 0.46 water cement ratio. To study the behaviour and response of beam members, casted with above said composition, in flexure, the tests performed after 7 and 28 days on beam specimens and the composite mix prepared, were flexural strength test, density and slump test. IS standards were followed while conducting the above captioned tests. The obtained results were compared with those of controlled M-25 concrete mix.

The investigated results found, vary according to proportions of supplementary constituents added to the M-25 concrete mix. The substitution of Basic oxygen furnace slag enhances the Flexural strength of M-25 concrete mix up to certain percentage. After adding 15% Basic Oxygen furnace slag in the mix, there is an increase of 17.67% strength after 7 days, and 17.26% increase after 28 days. The Flexural strength increases as compared to control mix as the percentage of Basic Oxygen furnace slag is increased. At 25% addition of Basic Oxygen furnace slag in the mix, there is an increase of 28.37% strength after 7 days, and 23.31% increase after 28 days. A decline in Flexural strength as compared to control mix was observed when the percentage of Basic Oxygen furnace slag was increased to 35%. A decrease by 3.16% was observed after 7 days, and 16.42% decrease after 28 days. Slump and unit weight of thus manufactured concrete also increases with the addition of Basic oxygen furnace slag to it. Thus Basic oxygen furnace slag can be successfully used in concrete, to improve flexural strength, slump values and weight of concrete as wells.

INTRODUCTION

Production of residues from industries and construction sector has increased during last few years. Much of these wastes have been thrown to land fill, without considering its potential for reuse and re-cycling as well [1].

Basic Oxygen Furnace slag is formed during the conversion of hot metal from the blast furnace into steel in a basic oxygen furnace **(Figure 1)**. In this process the hot metal is treated by blowing oxygen to remove carbon and other elements that have a high affinity to oxygen. The slag **(Figure 2)** is generated by the addition of fluxes, such as lime stone or dolomite that combines with silicates and oxides to form liquid slag. Some amounts of scrap are also added in order to control the temperature of the exothermal reactions [2].