

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

Qazi Qamar Iqbal Qari<sup>1\*</sup>

### 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 flourishing 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 (15<sup>th</sup> 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.

---

<sup>1\*</sup> Associate professor, Islamic University of Science and Technology, Awantipora, J&K

In the heart of the valley of Kashmir lies the capital city of Srinagar bound by the Zabarwan Range of mountains, a sub-range of Greater Himalayas, on its West, Anchar Lake and its wetlands towards its North-East, a network of low-lying wetlands, marshes and flood plains of river Jehlum and Flood Spill Channel towards its South-East and South. Furthermore, within the city limits of Srinagar lie the famous Dal Lake, Nigeen Lake, Koh-i-Maraan or Hariparbat hillock and river Jehlum traverses through the city. It is an ancient city, first laid down by Ashoka in 3<sup>rd</sup> century BC at Pandrethan (Puranadisthana) on the foothills of Koh-i-Sulaiman or Shankaracharya hillock and kept changing its position within the constraints of prevailing geo-political situations with Pravarapura of Pravarasena-II at the foothills of Koh-i-Maraan in 1<sup>st</sup> century AD, Rinchana's city at Budhgair in late 14<sup>th</sup> century AD on the higher grounds of the right bank of river Jehlum, Sultan Alauddin's city at Alauddinpora again at the foothills of Koh-i-Maraan and finally Sultan Zain-ul-Abidin's city at Naushehra. It is from here that the city of Srinagar kept expanding between the right bank of Jehlum and the foothills of Koh-i-Maraan and later spilled beyond these boundaries. The trajectory of expansion has been observed mostly along the foothills or higher grounds of the plains of Jehlum.

### Introduction:

Kashmir has witnessed rapid urbanization in the last few decades. The shift from vernacular technologies and locally made materials to be used in the construction industry has been in line with global trends. The surge in the construction of designer houses and imitation of foreign styles has been inconsiderate to the local climatic and geographic requirements. Like many medieval towns, the urban centre of Kashmir, Srinagar, witnessed a spike in population growth resulting in unprecedented growth of the city. The city sprawled in the absence of a masterplan for more than a decade during the 1990s and early 2000s putting tremendous pressure on the adjoining ecosystems and the political turbulence of the decade didn't allow for any infrastructural development of the core city, the cradle of heritage. This decadal pause in the evolution of the core city initiated the decay of the fabric in terms of lower occupancy rates and multiple ownerships. The exploitation started later with the city trying to cope with global developmental trends, finding no incentives for the upkeep of the houses built in vernacular techniques which also require higher maintenance. The result is the dissociation of the local stakeholders from the built heritage and the tearing down of this built heritage for better monetary gains. Post 1947 the city witnessed rapid growth in a very haphazard manner and later it was the masterplan of 1971 that diverted the growth in West and South-West directions mostly in low-lying areas, wetlands and flood absorption basins. This is a consequence of the surge in the population of Srinagar city from its population growth which led to un-restricted areal growth as is evident from the studies carried out by Nissar A. Kuchay, M. Sultan Bhat and Nuzhat Shafi of the Department of Geography and Regional Development, University of Kashmir.

Year	Area (Km <sup>2</sup> )	Population	Absolute Variation	Decadal growth rate	Density/Km <sup>2</sup>
1901	12.8	122618	--	--	9579
1911	12.85	126344	3726	3.04	9832
1921	14.48	141735	15391	12.18	9788
1931	17.6	173573	31831	22.46	9862
1941	17.6	207787	34212	19.71	11806
1951	29.52	246522	38735	18.64	8351
1961	41.44	285257	38735	15.71	6884
1971	82.88	403413	118156	34.31	4867
1981	208.9	606002	202589	40.13	2912
1991	NA	NA	NA	NA	NA
2001	278.1	995806	389804	64.32	3581
2011	278.1	1225837	230031	23.13	4407

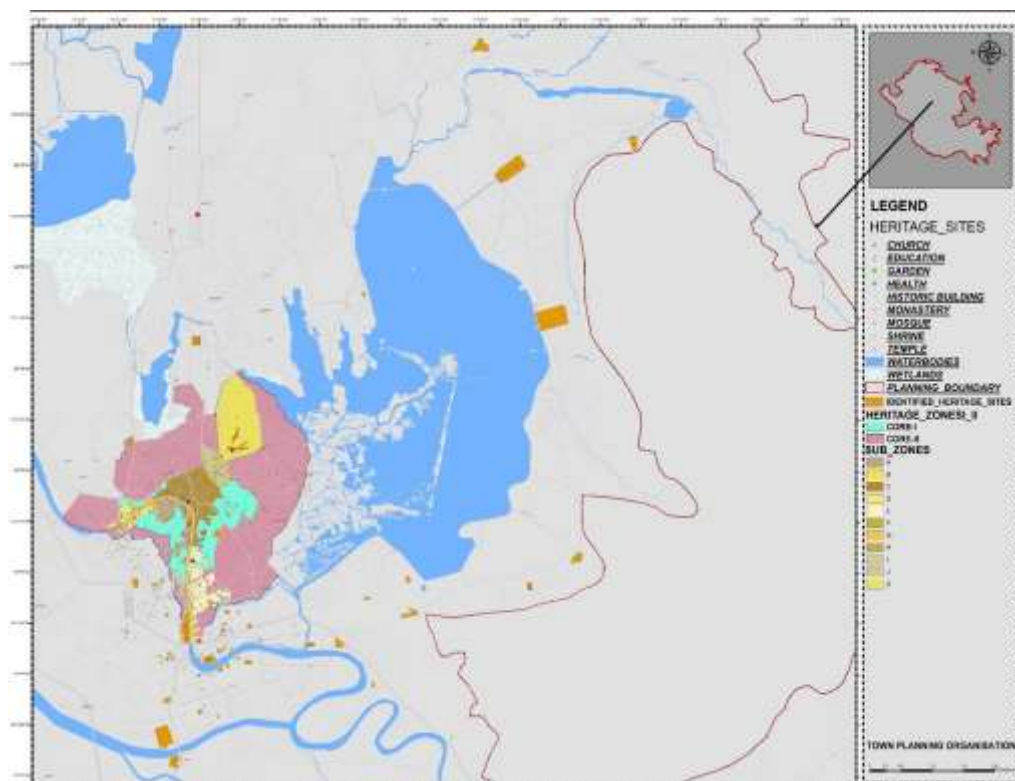
**Table 2:** Srinagar City – Population growth and areal expansion (1901-2011)



1	Agriculture	554.23	70.13	386.69	48.93	-167.54	-21.2	-30.22
2	Horticulture	6.39	0.81	85.3	10.79	79.91	9.98	1234.89
3	Forest	17.47	2.21	25.08	3.17	7.6	0.96	43
4	Scrubland	79.64	10.08	67.53	8.54	-12.11	-1.54	-15.20
5	Plantation	16.31	2.06	87.13	11.02	70.82	8.96	434.12
6	Streams	13.77	1.74	13.13	1.66	-0.64	-0.08	-4.04
7	Vegetables	0.34	0.04	10.13	1.28	9.79	1.24	2879.4
8	Wetlands	74.28	9.4	38.92	5.34	-35.36	-4.06	-32.03
9	Brick Kilns	1.5	0.19	7.6	0.96	6.1	0.77	406.6
10	Built-up	26.3	3.33	63.57	8.04	32.27	4.71	148.14
	Total	790.31	100	790.3	100	--	100	--

**Table 1:** Rural-Urban fringe Land-use change analysis 1971-2009

(Source: Dynamics of Land Use change in Rural-Urban Fringe: A case study of Srinagar city, Nengroo ZA, Shah AH, Bhat MS)



**Figure 2:** Map of Heritage Sites and Heritage Zones in the Srinagar Masterplan 2035 report.

Source: Masterplan-2035, Srinagar Metropolitan Region

The above studies indicate the rapid loss of built heritage and changes in land-use patterns in the heart of Kashmir, in and around Srinagar city in the past few decades. There has been increased growth in the land use of residential, semi-urban villages, built-up areas and brick kilns at the cost of a decreased land-use land-cover pattern of wetlands, scrublands, waterbodies and forests. These studies are indicators of challenges faced by the vulnerable heritage of the valley which presents itself in the form of built heritage and ecology.

Any efforts made by the government for the protection of both, the environment and heritage, have been unable to check their deterioration due to the lack of incentives for the stakeholders. With the growing population, the city will continue to grow, in the direction sought most feasible by the local population, if the scientific methods are not adopted to

find solutions while keeping the interests of the local population in view. Transferable Development Rights can be explored as one such legal and technical instrument to check the unprecedented developmental activities in ecologically sensitive areas and incentivize the built heritage of the valley for its better upkeep and protection. A study of the implementation of Transferable Development Rights across the cities in India and the rest of the world will provide insights into the techniques to be adopted for their implementation in the valley. It will also establish the fundamental framework required for its success as a tool for the protection of heritage and environment.

### **Transferable Development Rights:**

Transferable Development Rights (TDR) serve as a legal mechanism enabling the transfer of a parcel of land's development potential to another, emphasizing the preservation of natural or man-made resources for public benefit. This innovative approach detaches the right to develop land from land ownership, allowing the sale or acquisition of development rights for lands more suitable for increased densities. TDR becomes a valuable instrument for achieving greater economic returns on ecologically sensitive or historically significant properties, promoting urban growth in a planned manner to contain sprawl.

### **TDR in Global Perspective:**

In a global context, TDR's roots trace back to New York City's 1916 zoning ordinance, which permitted the transfer of unused air rights to adjacent lots, circumventing height and setback regulations. Since the Landmarks Preservation Law of 1965, TDR has been employed to balance the preservation of certain areas and the development of others. Despite legal challenges, such as the Fred F. French Investing Co. case in 1976, where TDR faced scepticism due to uncertainties in the market and mandatory transfers, subsequent cases like Penn Central Transportation vs City of New York in 1977 recognized the importance of protecting an individual's right to a reasonable economic return. This acknowledgement emphasized the need for fair compensation when a landowner relinquishes development rights, discouraging the devaluation of properties through land-use regulations. TDR emerges as a powerful tool not only for preserving heritage structures but also for fostering stakeholder participation and leveraging private capital investment in conservation efforts, contributing to a balanced and efficient urban development approach. In the 1970s, Montgomery County situated North of Washington over 3,23,000 acres of land, suffered a loss of 18 percent of its farmland to the fast-growing development rate. In 1973, to check this development rate, the county established a five-acre minimum lot size requirement which, however, could not halt the urban sprawl. The county assembled a task force to discover the most effective way of controlling urban encroachment, which after carefully studying the three options of preserving diminishing farmland: down-zoning the land, buying it or using the TDR, observed that the TDR program was the most feasible. In October 1980, TDR was introduced into the Masterplan for the preservation of an agricultural reserve of 1,10,000 acres. To consider the development rights for implementation of the TDR program, the rate was set at one dwelling unit for each 5 acres of the sending areas and the receiving areas were chosen within the growth centre areas. Since the minimum size to successfully operate a farm was set as 25 acres, the sending zones were downzoned to one dwelling unit per 25 acres in addition to the transferable development rights.

Brazil has adopted the concept of TDR as a national policy to get private investors to fund infrastructure projects and other items of public benefit. In addition to TDR, Brazil has also made use of a value capture instrument known as the Certificate of Additional Construction Potential (CEPAC), and both the instruments of TDR and CEPAC are used in similar ways to achieve private funding for infrastructure projects. This is achieved by limiting the FAR below the development potential for the receiving area and the additional FAR (to realize the full potential of the site) for viable development can only be achieved by purchasing the TDR from the land owners of sending areas or CEPAC from the authorities directly. This policy is, however, possible by creating pent-up demand for additional FAR in the

receiving areas by reducing their permissible FAR, and has been justified by the requirement of additional infrastructure for greater densities for developments using additional FAR. The municipality of Porto Alegre used the instrument of TDR to acquire 65 percent of the 13.2 hectares of land required to develop 40 meters wide and 12.3-kilometer-long avenue as a new artery saving 50 percent of the cost. In addition to helping finance the soccer stadium for the 2014 World Cup, the city of Curitiba has been using the TDR to develop a flood prevention program by creating parks that can act as overflow areas and storage lakes and also help preserve the trees and forested areas.

Capitalizing on its rich historical heritage, Italy has strategically employed Transferable Development Rights (TDR) as a tool for urban regeneration, championed by local administrations utilizing bonus rights techniques. This approach leverages development rights to achieve multifaceted objectives, including compensation for losses, economic and planning incentives, and distributive justice. Italian municipalities have adopted a unique approach to TDR, granting landowners development rights proportionate to the size of their property, regardless of the designated land use. Notably, the Umbria region has been at the forefront of this innovative practice, pioneering legislation that encourages planning interventions within the historic centres of towns through the implementation of bonus rights. The primary focus lies on planning interventions such as regeneration schemes, home refurbishment, and renewal initiatives aimed at revitalizing these historically significant areas. Importantly, these development rights are bestowed upon the proponent only after the completion of regeneration and restoration works. Moreover, these rights come with the condition that they must be utilized outside the confines of the historic zone, ensuring a strategic and effective use of TDR for the broader benefit of urban development.

#### **TDR in Indian Perspective:**

In the Indian state of Maharashtra, the inclusion of provisions for granting Transferable Development Rights (TDR) occurred through The Maharashtra Regional and Town Planning Act of 1966. This provision applied to land voluntarily surrendered, free of cost and without encumbrances. This strategic approach was prompted by the city's limited potential for horizontal expansion due to its linear geography and land constraints. Subsequently, in 1991, the development control regulations of the Bombay Municipal Corporation extended the eligibility for generating TDR to all land plots in the city. However, a crucial condition stipulated that the generated TDR could only be utilized outside the island city, to strategically decongest it. Between 1993 and 1997, TDR certificates were offered by the Municipal Corporation of Greater Mumbai (MCGM), also known as Brihanmumbai Municipal Corporation (BMC). These certificates were provided to landowners who relinquished their land for infrastructure development and public amenities such as road construction, school development, open grounds, and hospitals. Additionally, TDR was extended to builders and contractors who undertook the construction of essential services and amenities like roads, schools, and hospitals. In 1997, the Maharashtra government introduced a noteworthy expansion by offering TDR to developers engaged in slum redevelopment projects, particularly in high-density slums like Dharavi and PAP housing. Under these projects, TDR was granted for both the surrender of lands and the construction of infrastructure. This approach ensured that both landowners and builders received compensation in the form of TDR certificates equivalent to the area they had surrendered or developed. A legal challenge arose in November 2006 against the perceived indiscriminate use of TDR in suburban areas, burdening infrastructure elements such as open spaces, roads, drainage, and water supply. The Bombay High Court, characterizing the policy as socio-economic legislation, rejected the case, affirming the strategic intent behind the utilization of TDR to address urban development challenges and provide equitable compensation to stakeholders involved in various development activities.

While Transferable Development Rights (TDR) can originate from either the island city or suburbs in Mumbai, their utilization is restricted to designated suburban areas, specifically toward the North of the originating plot. This strategic allocation aims to drive development and growth towards the northern regions of the city. The Floor Space Index (FSI) for receiving plots has been increased from 1.0 to 1.4, applicable to both residential

and commercial zones. Mumbai's TDR program encompasses Reserved Plots TDR, Slum TDR, and Heritage TDR. Development Rights Certificates (DRC) obtained from these programs can be used by increasing FSI in receiving zones or selling the DRC. Reserved Plots TDR is granted to owners surrendering land for road development or public amenities. Owners receive a DRC with FSI equivalent to the gross area of the surrendered plot multiplied by the permissible zonal FSI. Slum TDR is provided to landowners/builders redeveloping slums under the Slum Redevelopment Scheme, offering additional Built-Up Area (BUA) as an incentive. Heritage TDR is for owners/builders unable to utilize the entire FSI due to Heritage Regulations, allowing TDR use within the same ward, even in the island city.

Similarly, Chennai incorporated TDR in its second master plan to incentivize owners of heritage properties denied full FSI potential due to development authority regulations. This includes properties affected by road projects, infrastructure development, or urban facilities. Exemptions exist for government entities, religious institutions, trusts, societies, and charitable institutions. However, the master plan lacks clear guidelines for TDR implementation in heritage conservation, emphasizing property maintenance in its original form without considering cultural significance and providing only a faint mention of a repair fund in heritage regulations.

With a large repository of architectural heritage ranging from elaborate religious buildings to residences with carved wooden facades, Ahmedabad is another city with a vulnerable heritage due to private ownership of these residential structures. The high maintenance cost of these old houses along with the lack of monetary support result in these structures in a state of decay and sometimes complete loss. With the challenge of the gradual loss of the heritage fabric, the Ahmedabad Urban Development Authority introduced the policy of Tradable (Transferable) Development Rights for the rescue of listed structures within the historic core of Ahmedabad. Approximately 12000 heritage structures have been pre-assigned tradable FSI, ranging from 0.5 to 0.3, based on their architectural and historical value. With a vision of Ahmedabad as a compact city for sustainable development and to contain the urban sprawl, the Ahmedabad Urban Development Authority (AUDA) has a focus on adequate densification of the existing areas, development along BRTS to encourage Transit Oriented Development and identification of new zones for Commercial Business Districts and Affordable Housing. To achieve the densification, FSI for certain areas has been increased to as much as 5.4. To encourage the private developers to purchase Tradable FSI from the heritage zone, it will be available for 40 per cent less than that of existing circle rates. Also, to facilitate the better implementation of TDR an interactive map is to be developed which will have all the listed heritage properties along with their tradable FSI marked through a system called Tradable Rights and Conservation Enabling System (TRACES).

The city of Hyderabad has also adopted the TDR system since 2006 for road widening under the masterplan, and conservation of lakes/waterways and heritage which the state kept revising through the years 2012 and 2017 issuing TDR certificates to the land owners at 400 per cent TDR for the land surrendered for road widening or making of new roads, 200 per cent for land surrendered within 30 meters from the full tank level boundary of lakes/waterbodies, etc. and 100 per cent for land surrendered for the preservation of heritage buildings and precincts. However, it is the discretion of the landowner to either ask for compensation under the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 or accept compensation by way of a TDR certificate. The Greater Municipal Corporation of Hyderabad (GHMC) has created a TDR Bank where details of all the TDR certificates that have been issued are uploaded on an online portal for interested purchasers to buy directly from the landowners. However, there is no bar set on the price of selling the TDR by landowners as it depends on the market demand and the TDR can be sold in parts also.

For the last couple of decades TDR policy, as an instrument for sustainable development and preservation of environment and heritage, has been introduced in various cities across India which include the Governments of Assam, Rajasthan, Karnataka and many more. It

has been observed that TDR is an essential tool to aid the cash deficit urban local bodies in the process of land acquisition and land development without putting pressure on the exchequer. Governments have started a flexible approach for its successful implementation and to obtain the desired results without devaluing the properties of land owners affected in the guise of both, preservation and development and made the benefits of TDR more lucrative to attract the attention of private developers and acceptance of landowners. However, the approach varies across various geo-political set-ups in the diverse country of India to suit the socio-cultural requirements of all the cities in which this policy has been implemented.

### **Conclusion:**

The Masterplan-2035 for Srinagar Metropolitan Region has been prepared for an area of 766 square kilometers for a threshold population of about 3 million people by 1935 and though the masterplan has made provisions for high-density developments for residential and commercial land use with maximum FSI achievable up to 3.0 and makes a mention of TDR in Chapter 16 under the sub head of Financing Urban Land, it is the responsibility of Urban Local Bodies for making an effective policy on the use of TDR in Srinagar to check the unprecedented growth of the city into the sensitive ecologies in the form of urban sprawl. TDR can be effective in adapting to high-density growth centers to create a multi-nucleated city and lessen the burden on the urban infrastructure of the city as well as help in realizing the Transit Oriented Development of the city without putting any pressure on exchequer. The hazards of sprawl have time and again been witnessed by the city, most recently being the floods in 2014 where most of the city remained inundated except the old parts of the city as developed in ancient and medieval times. TDR as an instrument can be effective in consolidating the sprawl back to the growth centres while balancing its environment, attracting stakeholders for active participation in heritage conservation and also incentivizing the conservation plan for creating a conscious association between people and their heritage, and luring private developers for public infrastructure development. Heritage Conservation and Preservation Act of 2010 makes a mention of the use of TDR instead of the acquisition of properties for heritage conservation. However, the question remains as to how long will it take for the Urban Local Bodies to envisage a policy framework for the implementation of Transferable Development Rights as a legal instrument for the preservation of heritage and environment.

### **References:**

1. Beg, M. Saleem. (2016). 'Issues of Conservation and Adaptation in Protecting Kashmir's Vernacular Heritage'. *International Journal of Environmental Studies*. Vol. 73 Issue 4: South Asian Vernacular Architecture.
2. Falco, Enzo. (2012). 'Transferable development rights in regeneration schemes for historic city centres. Legislation in the Umbria Region'. *IJPP – Italian Journal of Planning Practice*. Vol-II. Issue 2. Rome, Italy Walls, Margaret and McConnell, Virginia. (September 2007). 'Transfer of Development Rights in US Communities: Evaluating program design, implementation, and outcomes. Resources for the Future. Washington DC, USA
3. Fazal, Shahab and Amin, Arshad. (2011). 'Impact of Urban Land Transformation on Water Bodies in Srinagar City, India'. *Journal of Environmental Protection* 2(02), 142-153
4. Gilbert, Frank B. (Winter 1977). 'The Grand Central Case: The Preservation of Individual Historic Landmarks'. *Real Estate Issues*. Vol. 2 No. 2, New York, NY. Retrieved from: <https://cre.org/real-estate-issues/grand-central-case-preservation-individual-historic-landmarks/>
5. Khan, Bilal Ahmad. (2018). 'Demography of Jammu and Kashmir in Historical Perspective'. *Asian Review of Social Sciences*. Vol. 7 No. 3 pp 143-153
6. Kuchay, Nisar A., Bhat, M. Sultan and Shafi, Nuzhat. (January 2016). 'Population growth, urban expansion and housing scenario in Srinagar City, J&K, INDIA'. *Journal of eography and Regional Planning*. Vol. 9(1), pp. 1-11, Nigeria
7. Nainan, Navtej. (24 May 2008). 'Building Boomers and Fragmentation of Space in Mumbai', *Economic and Political Weekly*, Vol 43, Issue 2. Mumbai, India
8. Nengroo, Zahoor A., Bhat, M. Sultan and Kuchay, Nisar A. (2017). 'Measuring urban Sprawl of Srinagar City, Jammu and Kashmir, India'. *Journal of Urban Management*. Vol. 6 Issue 2 pages 45-55



9. Nengroo, ZA, Shah AH and Bhat, MS. (2017). 'Dynamics of Land Use Change in Rural-Urban Fringe: A Case Study of Srinagar City'. *Environmental Science: An Indian journal*. Vol. 13 Issue 4.
10. Routh, Rajdeep and Shah, Piyush. (September 2013). 'Facilitating the funding for the conservation through Tradeable Development Rights - An approach through mapping and analyzing the built heritage at Ahmedabad, India'. *The International Archives of the Photogrammetry Remote Sensing and Spatial Information Sciences*. Volume XL-5/W2, 2013. XXIV International CIPA Symposium, 2-6 September 2013, Strasbourg, France.
11. Stinson, Joseph D. (September 1996). 'Transferring Development Rights: Purpose, Problems and Prospects in New York'. *Pace Law Review*. Vol 17 Issue 1 Article 6. New York, USA.
12. Walls, Margaret and McConnell, Virginia. (September 2007). 'Transfer of Development Rights in US Communities: Evaluating program design, implementation, and outcomes. Resources for the Future. Washington DC, USA