

Theme 2-A: Urban Services & Climate Change

BUILDING CLIMATE RESILIENCE IN URBAN PLANNING

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Abstract: The world is more densely populated and more interconnected than ever before. The current state of play necessitates new types of governance to manage risk and address difficulties, from extreme weather to refugee crises, from disease pandemics to cyber-attacks. Reactive planning and segregated decision-making processes used in business-as-usual will not produce the underlying strength and flexibility required for us to survive in the face of the shocks and strains of the twenty-first century. In this paper, the concept of urban climate resilience is examined and how it may be turned into a practical framework for planners. Further, it also illustrates the framework's potential in the form of a case study of resilience planning initiatives carried out in Shimla.



Keywords: Resilience, Climate Change, Urban Planning, CRF

RETHINKING URBAN HEALTH DELIVERY SYSTEMS IN CONTEXT OF URBAN GOVERNANCE

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Abstract: Urbanization is one of the most significant trends of 21st century and the Proportion of Urban population increased from 10.8% in 1901 to 31.2% in 2011 and is expected to increase to 50% in next few decades. Indian Urbanization is not a clear case of planned urbanization but it includes Vulnerability, Marginalization and resources constraints for urbanization. The present paper analyses the urban health from the perspective of urban governance in terms of Urban health programme implementation, Inter-Sectoral collaboration action for health (IAH), Urban Health in covid times and How Human resources skilling can manage Covid 19 in urban India. The present study analyses determinants and outcomes of urbanisation on health and the effects of health on urbanisation. The study analysed the different literature, government sources and grey literature for the analysis. The preliminary findings suggest that Indian urbanization progress suffers from a vulnerability and marginalization



specially for urban poor, very limited inter sectoral collaboration, double burden of disease and growing health disparities in states in terms of health outcomes. Based on these findings, a wholistic policy overhaul is needed and evidenced based future research must be defined for better urban India.

Key words: *Urbanization, Urban Health, Urban Governance, Disease Burden And Urban Governance*

COMPARATIVE ANALYSIS OF EASE OF LIVING PARAMETERS AND URBAN GREENING INDEX

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Abstract Urban Green Spaces (UGS) provide essential ecosystem services and greatly aid in ameliorating the local climate and quality of life. UGS face an immense threat with rapid urbanization and governance apathy. With the induction of government backed initiatives like AMRUT and Smart Cities



Mission, preserving and developing open spaces became integral to the urban planning practice and local area development. The Ease of Living Index (EOLI) provides multiple indicators related to UGS with varied weights. However, the present UGS condition in the most liveable cities with high green scores have quality and quantity shortcomings. This research derives and compares the Urban Greening Index (UGI) for the most liveable Indian cities as per the 2018 EOLI report. Pune, Navi Mumbai and Greater Mumbai were the top three cities decreed most liveable as per EOLI 2018. This study used Landsat 8 remote sensing imagery with summer and winter variations for 2016 and 2019. Geospatial analysis using GIS was undertaken to derive the UGI for the selected cities. The methods adopted by EOLI to derive the green indicators, were found to be inadequate to assess the actual ground realities. The EOLI methods lacked actual consideration of vegetation quality, spatial arrangement within urban cores and clusters, proximity to residential areas, accessibility, and ecosystem services valuation, among other vital aspects. The study stipulates amended indicators that could be incorporated to better assess the EOL for Indian cities.

Key Words: *Urban Greening Index, Geospatial Analysis, AMRUT and Smart Cities*

AIR POLLUTION IN SPATIO-TEMPORAL FRAMEWORK AND ITS IMPACT ON HUMAN HEALTH: A CASE STUDY OF DELHI

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Abstract: Air is very important for all types of life in the biosphere. Human life is not possible without air because man can live for a few days without or for a few weeks without food but cannot survive even for a few minutes without air. At present the environmental pollution has reached at a dangerous level but along with this the awareness towards environmental protection has also increased from Stockholm conference to Johannesburg and Cop-8 conference of 2002 wherein many steps have been taken at national and international level. At present the most dangerous threat living organisms is the rise in temperature of the atmosphere. There is an increase in the levels of CO₂ by 0.4%, CH₄ 1.1%, CFC by 5% N₂O by 0.25 every year in the atmosphere, because of the increase in the amount of these gases over last 75 years the rise in atmosphere temperature has risen by 1.5°C. A number of policy measures have been activated in India in order to control the levels of air pollutants such as particulate matter, sulphur dioxide (SO₂) and nitrogen dioxide (NO₂). These air pollutants cause adverse effects on health and environment. The harmful effects of these pollutants on human beings, ecosystem, historical monuments and building are well documented Particulates are considered to be responsible for respiratory diseases, morbidity and mortality the major anthropogenic sources of air pollutants are industrial emissions, domestic fuel burning, emissions from power plants and transportation activities. In India, specifically in Delhi, vehicular pollution contributes 67% of the total air pollution load, which is approximately 3,000 metric tonnes per day (Central Pollution Control Board, 2001). The main objective of this studies to analysis the spatio-temporal framework and its impact on human health.



Key Words: *Air pollution, Air Quality Index, Respiratory Diseases, Human Health and Metropolitan city*

CLIMATE CHANGE GOVERNANCE IN URBAN AREAS: NORTHEAST INDIAN PERSPECTIVE

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Abstract: Urban areas are at the forefront of climate action as never before: they concentrate risk but also provide opportunities to innovate. Situated at the crossroads of extensive urbanization, unequal development, and high climate vulnerability, Indian urban areas face an urgent imperative to governance to current and projected climate change impacts. While the poor and marginalised who live in multidimensional poverty and face acute deprivation bear the brunt of the consequences. Climate change not only exacerbates their existing inequalities, but also leads to disproportionate sharing of climate change risks, necessitating a shift from mere climate change mitigation to climate change adaptation and recognition that the involvement of all government levels, particularly local governments, has become a sine qua non for climate change adaptation to work because the impacts of climate change are manifestly local. This paper argues that Indian urban local governments must occupy a definitive role in the Indian multi-lateral climate change governance framework. It argues that despite the important role played by urban local governments in combating climate change through adaptation strategies, multi-level governance framework is completely skewed in favour of the dominant and decisive role played by national and state governments. This paper examines the role of Northeast Indian urban areas in climate change and scrutinizes the multi-level governance.



Key words: *Northeast India, Climate change, local governments, climate change governance, urban, climate change adaptation*

COVID-19 AND CITIES IN INDIA: EMERGENCE OF NEW CONSTRAINTS CHALLENGES OF GOVERNANCE

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Abstract: Covid-19 started off as a small local epidemic in early 2020 but became so widespread globally that the WHO declared it as a pandemic in March 2020. Covid-19 spreads fast with increased density of people, so understandably cities have been the most affected due to the crisis everywhere. While a lot of research is ongoing on various effects of the pandemic, what is less addressed is the fact whether the effects of Covid-19 are short run or long lasting. For instance, Covid-19 led to lockdowns in many cities

of the world including Mumbai, Delhi, Manila, Shanghai, Sydney. In April 2020, a Barclays report estimated that “the absolute economic loss was likely the largest from the shutdown of Kuala Lumpur, Manila, Delhi and Mumbai, ranging from \$1 billion-\$1.7 billion per week.” It is not just the economy of these cities that have been adversely impacted, but also livelihood and food security for many migrants in these cities. In some cities, migrants lost their jobs and were food starved. They had no means of transport, so they walked to their hometowns. In contrast, reports are that housing became more affordable during the pandemic in the central parts of cities as it reduced the need for accessing employment there. But Covid-19 may also have led to significant suburbanization and sprawl as many working populations moved to cheaper locations while keeping their jobs in the central part of cities. There is some evidence that Covid-19 led to work from home (WFH) and work from anywhere (WFA) for the skilled labour force, but the unskilled were the ones to be the worst affected as their jobs (cooking, driving, domestic help, construction, and so on) cannot be done from home. Some research also finds that the pandemic pushed the urban poor further into poverty. In other cities, Covid exposed the poor state of health care infrastructure there. City governments everywhere have had to battle challenges of governance to take on additional responsibilities to cope with the pandemic—including testing, contact tracing, and monitoring. Due to the need for distancing, Covid-19 and the consequent lockdowns have also accelerated the growth of gig work, exemplified by food delivery, e-commerce, and even at-home beauty services.

Key words: Covid-19, Administrative Capacity, Governance, Stakeholders.

COMMUNITY PARTICIPATION IN RAIN WATER HARVESTING: A CASE STUDY OF DELHI

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Abstract: Water, the essence and sustenance of life, is among the biggest and most crucial natural resource. Water is considered to be a renewable natural resource since it continually being renewed through nature’s hydrological cycle. Due to the rapid population growth, there is no more water on earth now than there was 2000 years ago, when population was less than three per cent of its current size. Today, thirty one countries, accounting for less than eight per cent of the world population, will face chronic fresh water shortages by the year 2025, it is apprehended that forty eight countries are expected to face shortages affecting more than 2.8 billion people or thirty



five per cent of world's projected population. Declining ground water level is one of the major concerns of urban India. Among them, Delhi is one of the water-stressed cities of the world and is going to become a water scarce city in due course. At present neighboring states are supplying nearly 50 percent of Delhi's water needs. Consequently, the groundwater resource of Delhi is coming under immense pressure and it is adversely affecting Delhi's water supply condition. The total area of Delhi is only 1483 sq. km and except a small sub-basin of the Yamuna River, the city has very limited surface water resources (i.e., rivers, lakes, and canals). A large amount of rain water over Delhi translates into surface runoff and empties into the nearby storm drains. Point of concern is that the intensity of urbanization in Delhi is increasing day by day and as a result the runoff generation will continue to increase in the years to come. Till now, Delhi is somehow managing its water demand, however, is likely to face increasing water crisis if the government doesn't take any concrete steps. A large amount of Storm water runoff is being generated from a number of constructed zones including residential areas, commercial and industrial areas, roads, highways and bridges. So tapping of storm water from the localized catchment surfaces such as roofs of housing colonies, educational institutions, official buildings, and open areas surfaces etc is a good option either to recharge the groundwater aquifers or storing it for direct use. Basically, rainwater harvesting can be done at individual household level and at community level in both urban as well as rural areas

Key words: *Rainwater Harvesting, Renewable Natural Resource, Population Growth and Ground Water Resource*