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The Urban World

Quarterly Publication

Regional Centre for Urban and Environmental Studies
All India Institute of Local Self-Government, Mumbai

Regional Centre for Urban & Environmental Studies (RCUES), Mumbai

(Supported by the Ministry of Housing and Urban Affairs, Government of India)

Established in 1926, the All India Institute of Local Self Government (AIILSG), India is a premier autonomous research and training institution in India. The Institute was recognized as an Educational Institution by Government of Maharashtra in the year 1971. The Institute offers several regular training courses in urban development management and municipal administration, which are recognized by the Government of India and several State Governments in India.

In the year 1968, the Ministry of Housing and Urban Affairs (MoHUA), earlier Ministry of Urban Development), Government of India (GoI) established the Regional Centre for Urban & Environmental Studies (RCUES) at AIILSG, Mumbai to undertake urban policy research, technical advisory services, and building work capabilities of municipal officials and elected members from the States of Goa, Gujarat, Maharashtra, Rajasthan and UTs of Diu, Daman, Dadra & Nagar Haveli. The Ministry of Housing and Urban Affairs (MoHUA), Government of India added States of Assam and Tripura from February, 2012 and Lakshadweep from August 2017 to the domain of RCUES of AIILSG, Mumbai. The RCUES is supported by the MoHUA, Government of India. The MoHUA, Government of India has formed National Review and Monitoring Committee for RCUES under the chairmanship of the Secretary, MoHUA, Government of India. The Principal Secretary, Urban Development Department, Government of Maharashtra is the ex-officio Chairman of the Advisory Committee of the RCUES, Mumbai, which is constituted by MoHUA, Government of India.

The RCUES was recognized by the MoHUA, Government of India as a National Training Institute (NTI) to undertake capacity building of project functionary, municipal officials, and municipal elected members under the earlier urban poverty alleviation programme-UBSP. The RCUES was also recognized as a Nodal Resource Centre on SJSRY (NRCS) and Nodal Resource Centre (NRC) for RAY by then the Ministry of Housing and Urban Poverty Alleviation, Government of India.

The then Ministry of Urban Employment and Poverty Alleviation (MoUE&PA), GoI and UNDP have set up the 'National Resource Centre for Urban Poverty' (NRCUP), which is anchored by RCUES at AIILSG, Mumbai.

AIILSG, Mumbai is empaneled by the Ministry of Housing and Urban Affairs, Government of India, for providing technical support to the ULBs in the field of water supply, sanitation, sewerage and drainage systems. RCUES, Mumbai is also identified as a technical service provider in Municipal Solid Waste Management projects under Swachh Bharat Mission (SBM) launched by the MoHUA, GoI.

Over the years, RCUES of AIILSG Mumbai has been working in close coordination with state and local Governments to provide strategic, advisory, technical and capacity building support for assessment and improvement in infrastructure service delivery in cities.

Maharashtra Urban WASH and Environmental Coalition (Maha UWES-C) is a joint initiative of the RCUES of AIILSG, Mumbai, and UNICEF Maharashtra. The Coalition brings together local organisations, thought institutions and sector experts to strengthen municipal capacities and encourage collaborative action to enhance service delivery in WASH (Water, Sanitation, and Hygiene) in urban Maharashtra. The Secretariat of the Maha UWES-C is anchored at RCUES of AIILSG Mumbai. In 2022, MoU is signed with the Directorate of Swachh Maharashtra Mission, Urban Development Department, Government of Maharashtra for building capacities, facilitating partnerships, and supporting innovations under Swachh Maharashtra Abhiyan - Urban 2.0 under Maha UWES-C.

Along with ULBs, it is also engaging with multiple stakeholders like NGOs/CBOs, SHGs, private sector organisations, financial institutions at city level for providing technical and strategic support focusing on preparing action plans/strategies, technical assessment reports, CSPs/CDPs/DPRs as well as on-ground support by engaging with communities for improvement in various urban sectors to ensure improved quality of life to the citizens. AIILSG, Mumbai is also working at the grass root level in cities through field visits, guiding ULB officials, conducting situation assessments with the objective of bridging the gap between the cities and state for sustainable sanitation solutions under Swachh Bharat Mission Urban.

In February 2016, the then Ministry of Housing and Urban Poverty Alleviation, Government of India empaneled the RCUES of AIILSG, Mumbai for conducting training and capacity building programme for experts of SMMU, CMMUs, COs, Key Officials and other stakeholders of the states and ULBs under Deendayal Antyodaya Yojana – National Urban Livelihoods Mission (DAY – NULM).

In 2017, AIILSG was empaneled among one of the 35 agencies in India for conducting Integrated Capacity Building Programmes (ICBP). AIILSG Mumbai is supporting the states of Maharashtra, Rajasthan and Goa for the same.

Through all these activities, RCUES of AIILSG Mumbai is striving to transform the notion of capacity building by not limiting itself to trainings / workshops but engaging with the state and local governments at multiple levels. With a small but enthusiastic team, RCUES, Mumbai will continue to strive towards improving the capabilities of municipal officials with a broader objective towards developing able governments thereby enabling better cities.

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(October-December, 2022)

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Editorial

The Urban India is at an important historical juncture. Two crucial developments in the recent times that will impact the urban life have been India's contribution to COP27 and India's leadership role at G20.

With over 195 countries reaching a final agreement at UN climate talks (COP27) in Sharm el-Sheikh on, India proactively contributed in the two-week long negotiations through multiple interventions welcomed its outcome paving the way for setting up of a loss and damage fund, and inclusion of 'transition to sustainable lifestyles and sustainable patterns of consumption and production'. Our government has accepted the importance of pursuing an approach to education that promotes development path that sustains care, community, and cooperation of state and non-state actors. This makes it imperative for urban governance to promote a shift in lifestyles while fostering patterns of development that is conducive to environmental safety. Citizens and elected representatives will have to collaborate with the urban local self-government bodies to drastically reduce carbon footprints, develop resilience for climate change and control pollution.

The Presidency of G20 on 1st December 2022 will set the agenda amidst the ongoing Russia-Ukraine war, looming energy crisis and food crisis. The G20 will deliberate on the financial assistance as the way to embrace the climate target. The urban India will benefit from the climate finance for a judicious balance between the growth aspirations of poor and developing nations, and climate considerations. In his recent visit to Mumbai and Delhi, the United Nations Secretary General António Guterres expressed hope that India's G20 presidency will allow for the creation of effective systems of debt restructuring, warning that the developing countries are facing because of the impact of the pandemic and increased food and fuel prices due to the Ukraine conflict. The Indian cities urgently need financial assistance for creation of structures and mechanisms for the robust urban social and physical infrastructure based on Sustainable Development Goal-16 (SDG-16) that are focussed to make cities and human settlements inclusive, safe, resilient, and sustainable. This UN SDG-16 aims to normalize access to affordable housing, sustainable transport systems, enhanced urban planning and management, support system for survivors of gender-based violence, preservation of urban forests, and increase protection of cultural & natural heritage. Municipal services are expected to focus on air quality, green spaces, waste management with vision of 'reduce, reuse, recycle' i.e., 3 Rs of sustainable urban life.

The Urban World invites scholars, policy makers, practitioners, urban planners, and researchers to send their original research-based articles and book reviews with special focus on developmental concerns of the Urban India.

Built Environments for Future Healthy Cities through Physical Activity in Residential Spaces

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Abstract

Zoning regulations are the key to urbanisation, the built environment and public health. The regulations also help in promoting an active living approach to life. No systematic method has been used to measure the zoning regulations for physical activity. The lack of physical activities is a significant risk factor among people that create stress, mental health, COVID-19, diabetes, and other non-communicable diseases. The attempt is to develop a set of parameters in the built and socio-economic environment which can measure the implication of physical activity.

The parameters were selected from the municipal bodies' data, the census, the comprehensive development plan, and an extensive literature review. Results of a Delphi survey among professionals in urban planning, medicine, academicians, and corporates helped explore the parameters related to physical activity. All data were mapped using QGIS. Multiple criteria decision analysis (MCDA) and the analytical hierarchical processes were used.

The paper concludes that the parameters selected help measure the effect of zoning regulations on physical activity. Local social infrastructure and proximity to large parks are critical in promoting physical activity. Cities' planning and policies adapt at a micro-level and should focus on critical issues such as physical activity.

Key words

Zoning regulations, Physical Activity, COVID-19, Non-Communicable Diseases

Introduction

The definition of urban areas varies. Some countries define urban areas based on population density, administrative setups, economic attributes, or urban characteristics. According to the Indian census, the urban centre should have 500 people. The population density should be at least 400 persons per square kilometre, and 75 percent of the male population should be engaged in non-agricultural work. Towns with a population of 100,000 and above are called cities. Rapid economic growth has led to population density, crowded streets, unbalanced mixed land use, and a lack of green spaces. Zoning regulations have played a key role in economic development, controlling, and spreading land use, population density, disease patterns and active living. Active living is a concept that values and includes daily physical activity. It is how we can be active at work, school, college, or home. It is not the same as exercising.

Due to pollution and other factors, people in cities suffer from both communicable and non-communicable diseases. Non-communicable diseases are also chronic diseases that last for an extended period. They result from genetic,

physiological, environmental, and behavioural factors and affect people of all ages. Strong evidence shows that physical inactivity increases the risk of many adverse health conditions, including the world's major non-communicable diseases (NCDs) of coronary heart disease (CHD), type 2 diabetes, and breast and colon cancers, and shortens life expectancy. Non-communicable diseases (NCDs) are a public health concern accounting for 71 percent of global deaths each year. The risk of death due to NCDs increases with increased tobacco use, alcohol consumption, physical inactivity, and an unhealthy diet. (WHO, 2022). Physical inactivity has contributed to more than 5 million deaths per year, and those insufficiently active were at a 20 percent to 30 percent increased risk of death (Prashant Mathur et al., 2022).

Physical activity is an all-encompassing term that includes exercise and other activities involving bodily movements as part of working, active transportation, house chores, and recreational activities. It is the movement of skeletal muscles that requires energy expenditure. The WHO recognises physical inactivity as a global public health concern, with more than one-fourth of adults failing to meet the global recommended physical activity levels. Regular physical activity has benefits both for the mind and body. It helps in reducing high blood pressure and helps manage body weight. It also helps reduce the risk of heart diseases, stroke, diabetes, and various cancers. All these conditions increase the susceptibility to infectious diseases such as COVID-19. Consistently meeting physical activity guidelines is strongly associated with a reduced risk for severe COVID-19 outcomes among infected adults. It is recommended to promote physical activity be prioritised by public health agencies and incorporated into routine medical care. Exercise through walking helps to boost immunity against COVID-19. Regular physical activity benefits both body and mind. It can reduce high blood pressure, help manage weight and reduce the risk of heart disease, stroke, type 2 diabetes, and various cancers - all conditions that can increase susceptibility to COVID-19 (WHO, 2022).

Urban environments are always a mix of built environments and socio-economic parameters. There is a relationship between physical activity and these parameters. The key is to understand whether zoning regulations in the residential built environment positively correlate with physical activity to future healthier cities and livable cities.

The Study

The study aims to determine the socio-economic and built environment parameters at a residential housing level and their association with public health through physical activities. The parameters help understand how different physical activities, such as leisure / recreational, transportation, household and occupational, occur among people (Transportation Research Board, 2005).

Setting the Context

Bengaluru, the capital city of Karnataka, is one of the fastest developing cities in India. The total area of Bengaluru city is 741 sq. kms. and it is growing further. It is a landlocked city with expansion possibilities on all sides. In 2001 the population density of Bangalore was 2985 per square km, and in 2011 this rose to 4378 people per square km. Today its population stands at 12,764,935, about 17,000 inhabitants per sq. km (Reddy, 2020). Cars once considered a luxury became a common commodity, but the city does not have road infrastructure to accommodate them, leading to traffic congestion. Rising traffic congestion is a severe issue confronting Bangalore. The combination of population and economic growth of Bangalore contributes to the increased number of registered vehicles and miles/kilometers driven (Rajasekaran, 2017).

The city is divided into eight zones and 198 wards within these eight zones. The study has gone into

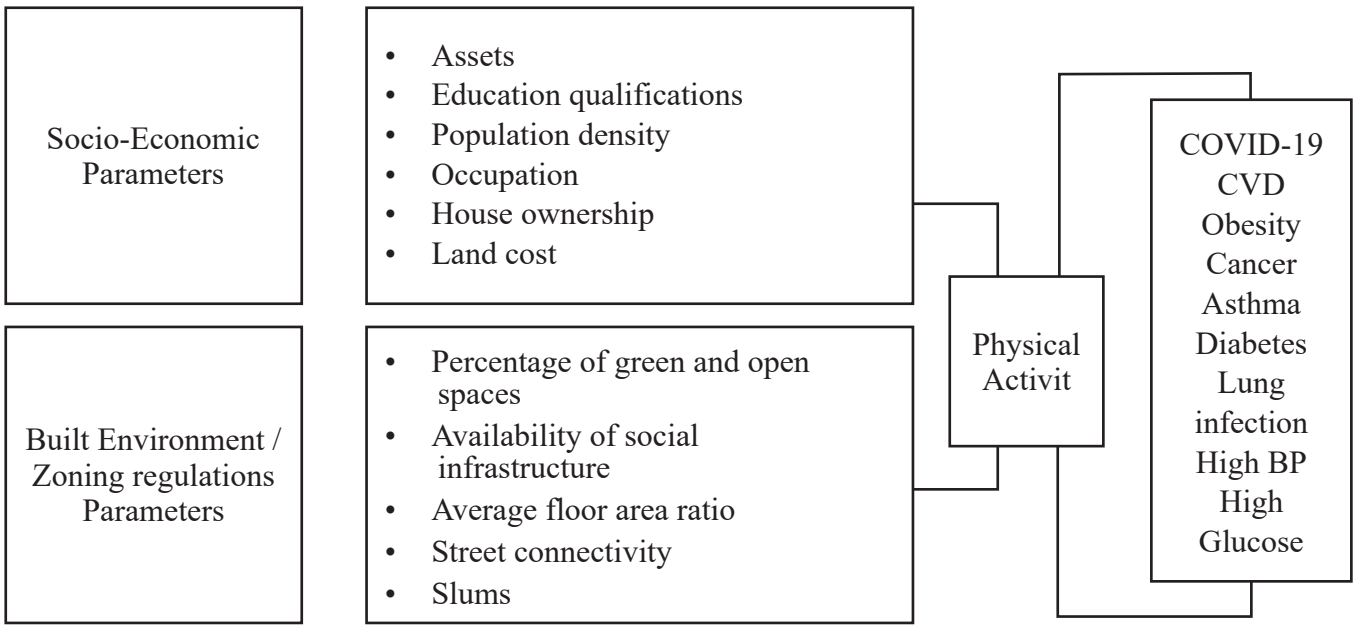
depth to understand that each of the 198 wards is associated with physical activity through socio-economic factors and the built environment. Based on the zoning regulations, these wards are classified into various land uses, such as residential, industrial, commercial, public, and semipublic, traffic and transportation, parks, and open spaces. The zoning regulations provide the allowable built-up area based on the Floor Area Ratio (FAR). FAR is the total built-up area upon the site area. The rules also make the setback permissible on each plot and the building height proper. Ancillary land use in terms of the percentage of built-up area in each land use is also provided. The two main parameters in the regulations are the plot size and minimum road width. The study is restricted to residential land uses only.

Methodology

An extensive literature review was conducted to understand the parameters affecting physical activity in a residential layout. The research used a qualitative methodology based on the approach advocated by Saaty (Saaty, 2008) through the analytical hierarchical process. The Analytical Hierarchy Process is one of the most sought-after techniques in management science to define weights to the Multiple Criteria Decision Analysis (MCDA). The AHP is a technique that helps make decision-making transparent and gives a hierarchy of relevant parameters. The parameters that affect physical activity are assigned weights based on importance. For this, a Delphi survey was conducted among prominent personalities in planning and medicine for the study. The average weightage of each of the parameters was considered for the analysis.

The built environment includes buildings, landscaped areas, structures, and features required for living and working. It is made for humans, by humans and for human activities. The residential built environment (Figure 1) explains the overall framework of the study.

Figure 1: Residential Built Environment determines the Health of the People



Analytical Hierarchy Process

Saaty's Analytic hierarchy process is one of the most widely accepted methods for scaling the weights of the parameters by constructing a pairwise comparison matrix of the parameters whose entries indicate the strength with which one parameter dominates over another. It is a methodology to calibrate on a numeric scale for the measurement of quantitative as well as qualitative parameters. The pairwise comparison matrix of parameters results in a matrix based on a scale of important intensities towards physical activity. The Analytical Hierarchical Process method has inbuilt checks and balances to ensure that one reaches a logically consistent solution when comparing the criteria' relative importance in assigning weights to them. Further, integrating QGIS with multi-criteria decision analysis (MCDA) provides a unique and valuable solution to problems associated with spatial decisions (Vaidya, 2004).

The Process

Physical activity is defined as the dependent variable Problem. Through the literature review, the parameters were divided into three parts – 1) the zoning regulations parameters that included the percentage of green and open spaces, availability of social infrastructure (Social infrastructure included hospitals, Malls, recreational spaces, theatres, libraries, public squares, hotels), average Floor area ratio (total built-up area upon site area), 2) the Built Environment parameters included street connectivity and Housing typology, 3) the socio-economic parameters included the occupation of the people, assets, education qualifications, population density, house ownership and land values. Weights of the parameters are given for physical activity .

Accountability Parameters for Physical Activity

The built environment should directly or indirectly make physical activity in everyday living. It should be the easiest choice of transport, affordable choice, the most accessible choice, and the most desirable option across all lifestyles for all-inclusive, elderly, the disabled, women, children, and men (Devarajan, 2019). With such a high population density, Bengaluru is in a desperate mode to decongest health. The study was made measurable and analytical. Through an initial extensive literature review, various determinants of physical planning were considered to achieve this. The analytical hierarchy process was taken to analyse the parameters.

(1) Parks and open spaces - provide spaces for socialising, decrease noise, and air pollution, and improve immune function by providing exposure to beneficial microbiota. They can also help with psychological restoration, i.e., green space offers a respite for over-stimulated minds. (Roccio, 2019). (2) Assets – Assets such as cars and two-wheelers support transportation types of physical activities for older adults. Benefitting from improved designs and accessibility vehicles, they have helped the more senior generation connect and network. However, the sedentary nature of their usage results in a decline in physical functionality and reduced physical activity capability (Thoreau, 2015). The impacts include obesity, cardiovascular diseases, accidents, and increased air and noise pollution (Douglas, 2011). Study results suggest that a one per cent decrease in the use of automobiles can decrease obesity by 0.4% (Samimi, 2007). (3) Education/literacy. As per a study conducted to understand the relationship between education and physical activity, people with a relatively low education led to more labour-intensive occupations and hence a higher level of physical activity among people (Shaw, 2008). (4) Population Density - One of the most significant drawbacks of high population density, besides congestion, pollution, environmental impacts on the local weather due to excess heat and excess carbon dioxide, and water shortages, is the potential loss of 'green-belt' land, impacting on the quality of life (Pettinger, 2017). In

another study, 5285 individuals were sampled to conclude that middle-aged people living in highly populated areas tended to be overweight. (Wang, 2019). (5) Occupation – Part-time and full-time employment and distance to work spot play an essential role in physical activity. The type of occupation is also equally important. It can be further differentiated into blue collared and white collared jobs. Additionally, retirement may provide ample time for people to indulge in recreational activities. Still, at the same time, retirement also brings about little or no source of income for retired people. It also results in a loss of social contact, prohibiting retired people from participating in leisure and social activities (Mel, 1994). (6) House Ownership - House ownership is 'the most culturally prominent and accessible symbol of personal power, achievement, and control over the environment (MaCkay, 2020). House ownership also makes people familiar with the surroundings, neighbours, and places of interest, such as religious institutions, hospitals, and friends. These automatically promote physical activity through walking. (7) Slums – Slums are informal settlements for people of lower social-economic status. Slums also have a concern about upkeep and hygiene. Studies have found that unsafe neighbourhood conditions, poor street and footpath conditions, poor street lighting, lack of green spaces, and financial barriers to access recreational facilities limit the ability of the slum population to engage in recreational physical activity (Hiilde, 2017). (8) Street Connectivity - Street connectivity is an environmental factor defined as the directness of links and density of connections in street networks (Peng, 2019). Street connectivity is usually measured by the number of intersections per square kilometre. More significant physical activity also happens when there is good street connectivity, especially among adults walking for transport and occupation (Koohsari, 2014) (9) FAR – The total built-up area of a building upon the site area. Population and vehicular density may likely increase in areas with a high built-up area. Still, physical activity for leisure and recreation may be of poor standards (Forsyth, 2007). Walking as transport may increase, but it could be not accessible due to the high density. It directly affects the disabled, senior, and retired community. (10) Land costs – Land costs depend on the location. Land purchase for residential purposes depends upon surroundings, accessibility to economic activity and land conditions. They affect the development of the residential built environment. Healthy land conditions support economic activities, which, in turn, help populations grow and increase their physical activity (Jagg, 2020). (11) Social Infrastructure - includes theatres, cultural centres, clubs, hotels, hospitals, public open spaces, recreational and entertainment buildings. The social infrastructure allows society to interact with individuals and give positive mental outcomes (Gary, 2003). Easy and walkable access to entertainment and recreational such as theatres and public open spaces is associated with increased walking and, therefore, increased physical activity. In contrast, low-density, sprawling neighbourhoods and car-dependent suburbs have adverse health outcomes (Griffin, 2013). Social Infrastructure influences avoidable health inequalities in society. It also affects individual satisfaction with their local community and contributes to a community's liveability (Davern, 2017). Access to local services, daily goods, jobs, open spaces, and parks is associated with increased transport walking. (Davern, 2017). The selection and design of sites concerning a building's location on its site and within its immediate community and the provision and layout of site amenities affect physical activity (Zimring, 2005).

Data

Bengaluru is divided into 198 wards of varying sizes across eight administrative zones of the Bruhat Bengaluru Mahanagara Palike (BBMP). The BBMP has no data on the population's non-communicable diseases or physical activity patterns.

The land use data was taken from the zoning regulations (BDA, 2007). It applies to the Bangalore Metropolitan Area, also defined as the Local Planning Area (LPA) for the city of Bangalore and its environs, as declared under the KTCP Act, 1961. The classifications of land Uses are as follows – Residential (R), Commercial (C), Industrial (I), Public and Semi-Public (P&SP), Traffic and Transportation (T&T), Public Utilities (P), Park and Open Spaces (UC) and Agricultural Land (AG). Street connectivity was developed through QGIS, and the land use map given.

Data from the census 2011 was taken to define the socio-economic parameters of Bengaluru. Through the land use map, green and open spaces were expressed. Land values were taken from the government guidance value.

The data was also collected in lines and points, polygons with X and Y coordinates maps, digitised pictures, and spreadsheets. The spatial join method converted data from the spreadsheet to the maps. The vector format was converted to raster format to make maps for various parameters based on the multiple data and shapefiles. All data was fed into QGIS and were mapped ward-wise. The resultant map of each parameter is brought to a similar scale for comparison by scoring them on a scale of one to five, one being the least suitable and five being the most suitable (prioritising the critical parameters). With this method, we get a ward-wise map with this scale for each parameter.

Developing a Pair-wise Comparison

As per the Delphi survey, practising professionals, architects, doctors, urban planners, and property developers at the government level and private were selected to provide their scores and weights to the parameters for the AHP. Average weights were considered for the analysis.

The analytical hierarchical process was done using MS. Excel, using the Saaty method. Using the scoring pattern in Table 1, the analysis began by comparing parks with assets. As a rule, **"The row element was divided by the column element"**. The logic is to understand how important parks are for physical activity assets. For example, if Parks are nine times more important than assets, Parks will be "9x", and Assets have a value of "x" for physical activity. The cell value between "Parks and "Assets" will be "9x/x" = nine is written in the cell along the "Park" and column "Assets". Inversely, along the row "Assets", the value "x/9x = 1/9" is written along with the row Assets and Park column. This way, the entire pairwise comparison matrix with physical activity is completed.

Table 1: The Fundamental Scale of Absolute Numbers

Relative Importance	Definition	Explanation
1	Equal Importance	Two parameters contribute equally to the objective
3	Weak Importance	Experience and judgement slightly favour one parameter over another
5	Strong Importance	Experience and judgement slightly favour one parameter over another
7	Demonstrated Importance	One parameter is strongle favoured and demostrated in practice
9	Extreme Importance	The evidence favouring one parameter over another is of the highest possible order of affirmation
2,4,6,8	Intermediate values	When compromise is needed between two adjacent judgments

Table 2: Pair-wise Matrix

	Criteria Weights	0.20	0.05	0.06	0.05	0.05	0.07	0.04	0.10	0.04	0.05	0.23
	Criterion / Parameters	Parks	Assets	Literacy	Population Density	Occupation	House Ownership	Slum	Street Connectivity	F.A.R.	Land Cost	Social Infrastructure
1	Parks	1	3.6	4.8	4	4.8	4.4	4.4	3	4.8	4.2	1.2
2	Assets (cars and scooters)	0.26	1	2.09	1.17	1.9	0.36	2.66	0.85	1.52	1.09	0.18
3	Literacy	0.20	1.79	1	2.45	1.93	0.84	2.13	1.03	2.86	1.96	0.19
4	Population Density	0.27	1.96	1.09	1	1.49	1.55	2.26	0.35	1.82	1.59	0.22
5	Occupation (White collared and Blue collared)	0.22	1.41	1.39	1.73	1	1.15	1.70	0.37	1.89	2.16	0.18
6	House Ownership	0.22	2.8	2.86	2.31	2.36	1	2.26	0.79	2.62	1.72	0.23
7	Slum	0.20	0.85	1.34	0.96	1.79	0.89	1	0.32	1.09	0.94	0.18
8	Street Connectivity	0.45	2.66	2.85	2.8	3	2.4	3	1	2.9	2.13	0.22
9	F.A.R. (build up area)	0.19	1.46	0.84	1.03	1.61	1.05	2	0.62	1	1.54	0.16
10	Land Cost	0.25	1.6	1.19	1.51	1.16	1.03	2.2	1.35	2.11	1	0.18
11	Social Infrastructure (art galleries, theaters, cafes, restaurants, hospitals, place of worship, public squares, etc.)	0.9	5	4.8	4.6	5	4.4	5.2	4.6	5.8	5.4	1
12	Sum	4.21	24.16	24.27	23.58	26.06	19.1	28.84	14.32	28.45	23.76	3.98

All eleven parameters are compared based on the accountability parameters for physical activities. A pairwise matrix is developed from the Delphi survey scoring pattern. It is the average of the scores of the survey results. When the parameter is compared with itself, the score is one, Table 2.

Developing a Normalised Pair-wise Matrix and relative Weights

During this stage, first, each column is summed up. The normalised matrix for each parameter in the row is calculated by dividing each value in the column by the total. We create a new matrix with these values. Then, each row is averaged out, and each parameter's relative weight in percentage is derived.

Consistency Index and Consistency Ratio

A Consistency Index (CI) is used to measure the degree of inconsistency in the matrix . Saaty (1980) compared the estimated CI with the same index derived from a randomly generated square matrix called the Random Consistency Index (RCI). Lamda calculations are given in Table 4.

Random Index developed by Saaty is shown in; Table 5.

Consistency Index (CI) = (Lamda max – n (number of parameters))/ n – 1.

Consistency Ratio = Consistency Index (CI) / Random Consistency Index (RCI)

Table 3: Normalised Pair-wise Matrix

.	Criterion / Parameters	Parks	Assets	Literacy	Population Density	Occupation	House Ownership	Slum	Street Connectivity	F.A.R	Land Cost	Social Infrastructure	Sum of normalized pairwise matrix	Criteria Weights	Total Weights
1	Parks	1.18	0.80	1.14	0.86	0.94	1.17	0.81	1.06	0.85	0.92	1.48	2.24	0.20	20.44
2	Assets (cars and scooters)	0.31	0.22	0.39	0.24	0.35	0.10	0.41	0.22	0.24	0.26	0.23	0.60	0.05	5.46
3	Literacy	0.24	0.36	0.24	0.49	0.42	0.23	0.34	0.25	0.51	0.41	0.24	0.75	0.06	6.86
4	Population Density	0.32	0.37	0.18	0.23	0.28	0.39	0.36	0.12	0.32	0.28	0.27	0.63	0.05	5.76
5	Occupation (White Collared and Blue Collared)	0.26	0.27	0.24	0.31	0.21	0.30	0.26	0.13	0.30	0.44	0.23	0.60	0.05	5.46
6	House Ownership	0.26	0.59	0.58	0.41	0.40	0.26	0.36	0.23	0.44	0.33	0.29	0.84	0.07	7.64
7	Slum	0.26	0.17	0.23	0.28	0.3	0.23	0.19	0.16	0.19	0.18	0.23	0.47	0.04	4.32
8	Street Connectivity	0.54	0.52	0.54	0.64	0.57	0.62	0.57	0.399	0.54	0.41	0.27	1.13	0.10	10.30
9	F.A.R. (build up area)	0.23	0.25	0.14	0.18	0.26	0.24	0.31	0.17	0.17	0.27	0.21	0.49	0.04	4.49
10	Land Cost	0.30	0.29	0.21	0.29	0.2	0.28	0.35	0.43	0.37	0.25	0.22	0.64	0.05	5.90
11	Social Infrastructure (art galleries, theatres, cafes, restaurants, hospitals, place of worship, public squares, etc.)	1.07	1.11	1.12	1.00	1.03	1.13	0.99	1.83	1.02	1.19	1.29	2.56	0.23	23.32
													11	1	100

Table 4: Lamda Calculations

Criteria Index Calculations												Weighted Sum	Criteria Weights	Rate of WS / CW
Parks	0.20	0.19	0.33	0.20	0.24	0.33	0.17	0.27	0.21	0.22	0.27	2.66	0.20	13.07
Assets (cars and scooters)	0.05	0.05	0.09	0.05	0.08	0.02	0.05	0.05	0.05	0.06	0.04	0.64	0.05	11.67
Literacy	0.04	0.08	0.06	0.11	0.11	0.06	0.06	0.06	0.13	0.10	0.04	0.90	0.06	12.84
Population Density	0.05	0.08	0.04	0.05	0.06	0.11	0.04	0.03	0.07	0.06	0.05	0.69	0.05	11.95
Occupation (White Collared and Blue Collared)	0.04	0.06	0.05	0.06	0.05	0.08	0.05	0.03	0.06	0.11	0.04	0.67	0.05	12.14
House Ownership	0.04	0.13	0.17	0.08	0.10	0.07	0.06	0.06	0.10	0.08	0.05	0.98	0.07	13.02
Slum	0.04	0.04	0.05	0.07	0.06	0.06	0.04	0.03	0.04	0.04	0.04	0.53	0.04	12.03
Street Connectivity	0.09	0.12	0.15	0.15	0.15	0.18	0.12	0.10	0.14	0.10	0.05	1.37	0.10	13.20
F.A.R. (build up area)	0.04	0.05	0.03	0.04	0.07	0.08	0.03	0.04	0.04	0.06	0.03	0.54	0.04	12.44
Land Cost	0.05	0.06	0.04	0.06	0.04	0.08	0.10	0.11	0.09	0.06	0.04	0.77	0.05	12.47
Social Infrastructure (art galleries, theatres, cafes, restaurants, hospitals, place of worship, public squares, etc.)	0.18	0.26	0.31	0.23	0.27	0.33	0.23	0.47	0.25	0.28	0.23	3.09	0.23	13.16
												Lamda Max =		12.54

Table 5: Random Index

N	3	4	5	6	7	8	9	10	**11**	12	13	14	15
Random Consistency Index (RCI)	0.58	.90	1.12	1.24	1.32	1.41	1.45	1.49	**1.51**	1.48	1.56	1.57	1.59

The ratio of CI to RCI for the matrix is called the Consistency Ratio (CR). The critical consistency of each expert was determined. Generally, a CR of 0.10 (point one) or less, 0.09 (point zero nine) or less, or 0.05 (point zero five) or less is considered acceptable (Mongkut, 2003).

The Consistency Ratio calculation is as follows :

Table 6: Final Consistency Ratio

Lamda	12.54
Consistency index	0.15497
Consistency ratio	0.1026288

The consistency ratio was 0.10 (point one). Based on Saaty's AHP model, the weights are acceptable.

Results

Based on the study, social infrastructure and parks/green and open spaces take almost fifty percent of the weights that help physical activity, as highlighted in Table 7.

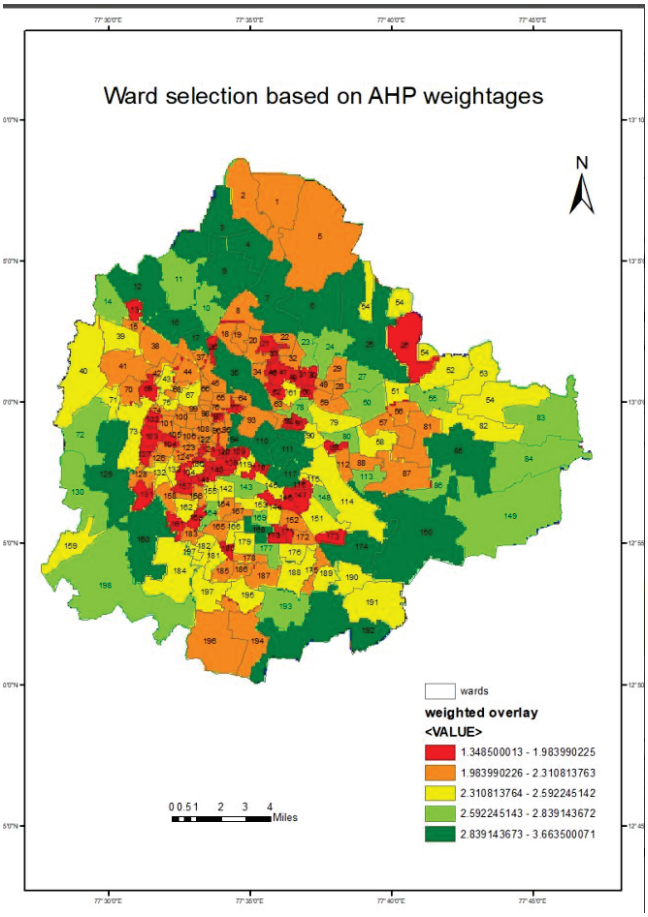
Table 7: The Total Weight for each Parameter in Percentage

	Criterion / Parameters	Sum of normalized pairwise matrix	Criteria Weights	Total Weights
1	Parks	2.24	0.20	20.44
2	Assets (cars and scooters)	0.60	0.05	5.46
3	Literacy	0.75	0.06	6.86
4	Population Density	0.63	0.05	5.76
5	Occupation (White Collared and Blue Collared)	0.60	0.05	5.46
6	House Ownership	0.84	0.07	7.64
7	Slum	0.47	0.04	4.32
8	Street Connectivity	1.13	0.10	10.30
9	F.A.R. (build up area)	0.49	0.04	4.49
10	Land Cost	0.64	0.05	5.90
11	Social Infrastructure (art galleries, theatres, cafes, restaurants, hospitals, place of worship, public squares, etc.)	2.56	0.23	23.32
		11	1	100

Further, a multi-level model in the form of a suitability map is developed to illustrate the roles of numerous parameters in research on the physical activity of a community/ward. The final map was created based on the weights in QGIS on all the 198 wards in BBMP.

The suitability map in Figure 2 explains ward-wise areas suitable for physical activity. The dark green wards are areas that have areas that are most suitable for physical activity. It can be observed that central Bengaluru is exceptionally congested and make physical activity difficult or impossible. But as we go away from the city centre, we have more open spaces and social infrastructure.

Figure 2: Suitability Map for Physical Activity in Bangalore



Discussions

Our study has much strength in this health science research as the analysis above validates the relationship between the built environments and socio-economic parameters and health through physical activity. It is contextual and specific. The study is limited to residential areas only. Through physical activity, it examines how zoning regulations affect public health, including COVID-19. This experimental approach had comparisons of data from different years. Though the census is done once in ten years, it is only a matter of months due to zoning regulation, occupation, and unplanned layouts that can change land use, the population density of a locality or even the occupation pattern of the community.

The Delphi survey did the critical components of public participation and deliberations of identifying consensus views across subject experts to understand this. It allowed discrete decisions among those who were nuanced and considered their opinions anonymous to others. The subject experts included property developers, academicians, practising planners at the Government and private level, and practising medical doctors. The anonymity helped to avoid pressure from dominating experts. They were accessible to, at any point, change their opinion or judgement. It was, therefore, time-consuming. Though qualitative in approach, the AHP provided quantitative results in terms of weights of parameters.

The results of the AHP are based ward-wise and, more importantly, are relative to each other. The suitability map is developed based on the data of the parameters of all wards—the higher the weighted overlay value, the better the area for physical activity. Green wards are favourable for physical activity. They are calmer areas where peaceful residential living has less traffic and lower population density. For instance, ward no:168, green, has a population density of 164.84 pph, as against ward no:180, red, and a population density of 620.16 pph. The percentage of parks and open spaces in ward no:168 is nearly 10%. They have a good portion of Government developed parks for their residences. The real estate value in such green wards areas is undoubtedly higher than in the rest of the city. The percentage of parks and open spaces in residential ward no:180 is barely 1% of the total area. The zoning regulations also provide for mixed-use development, irrespective of the population density, and are based on land use, plot size, built-up area, and road widths. It has led to an unbalanced housing typology. As per the data, the red wards account for nearly 60% of mixed-use residences and commercial spaces within the same built-up area, compared to only 35% of mixed-use in the green wards. Excess mixed-use has resulted in overpopulation, traffic, and encroachment of open spaces. It affects the physical activity of the local populace. It gives a clear understanding that the zoning regulations are not evenly spread and built as suggested across all the residential wards of the city.

Further, zoning regulations are road centric. Surface parking or parking in the basement is based on the plot and built-up area. However, an owner cannot limit the number of vehicles (as part of assets owned in the suitability map) regarding the built-up area and plot size. It has led to uncontrolled vehicle ownership leading to traffic congestion and overcrowding and making physical activity such as walking or cycling almost impossible. Therefore, although they are relatively favourable to physical activity in Bengaluru, the green wards are highly populated with high traffic density.

Zoning regulations are, therefore, not people friendly. The regulations have no definite provision for pedestrian paths in residential wards. The definition of the road width includes carriageway, footpaths and storm water drain on two sides. The carriageway is defined based on the vehicle widths.

Footpaths are whatever possible, based on site conditions, provided. It has no relationship with the population of the street or the ward in general. The regulations do not provide specific footpath designs regarding levels, disabled-friendly, or even widths. All these factors make walking almost impossible in residential areas. Since the entire process of walking or cycling around in the residential neighbourhood is so complex, people tend to buy motorised transport, at least a two-wheeler, as soon as possible.

There is also no control of the population density within each ward. The regulations allow individual plot sizes of 600 sq.ft., 1200 sq.ft., 2400 sq.ft., and 4000 sq.ft. in main residential areas. One can build multiple dwellings on these plots with little or no setbacks. For instance, the 600 sq.ft. property is 55.66 sq.m. (6.09 m. x 9.14 m.). With a FAR of 1.75, we can develop 99 sq.m. or 1055 sq.ft. with no left and rear setbacks. The regulations further allow 20 percent of the built-up area for commercial activity such as small household industries and little shops. Such rules lead to unhealthy living spaces, overcrowding and stress on urban utilities and transport. The net residential density and mixed land use are already so high that it chokes walkability and basic dignity (Raji Devarajan et al., 2019). Unbalanced mixed-use development makes people live and work in overcrowded localities. People find it extremely hard to walk on public roads and pathways with heavy traffic, cars, trucks, garbage, hawkers, and encroachments by parked vehicles or shops. It creates an environment that lacks safety and dignity for walking.

Unbalanced mixed-use and uncontrolled population growth have led to hazardous and inconsistent residential development. Based on the AHP weights, the critical parameters for physical activity are social infrastructure and green and open spaces. Zoning regulation should be developed based on local micro surveys and the people's needs. They bring people out of their homes and help with physical activity. Their location and home access are vital in reducing mental depression and improving networking among people. Permanent housing provides people with security and connects people with the built environment. It gives them a sense of ownership of the area.

In line with the hypothesis, it can be seen that zoning regulations directly impact the health of the city. Ignoring the relationship of zoning regulations with public health would adversely affect the population's health and the city's overall economic growth.

Conclusions

While cities continue to grow and expand, zoning regulations become even more critical for an integrated perspective on healthy living spaces. In principle, all residential city wards should have an active transport system. It should be the first and easy option to get around by foot, bicycle, or lead to good public transport, and green and open spaces. Household work activities, occupation, recreation, public spaces, green spaces, and access to public transportation covered by active transport significantly impact public health. These are sustainable outcomes for society. This study shows that zoning regulations have a measure of evidence of reliability. This study is initial research and has the potential to guide further understandings of the effect of built environments on people's physical activity. This study also proves that this exercise is dynamic and contextual to a particular area. Understanding the local built environment at a micro-level and how that correlates with physical activity is a priority that could lead to better strategies to prevent further increase of non-communicable diseases and COVID-19 through physical activity as a risk factor. Each locality with its people is unique. At a micro level, it could be suggested that market analysis should be conducted to understand the dynamics of the people and built

environments. The results of this could help in developing better zoning regulations.

The multi-criteria decision process will help the Government to overlay the good wards for physical activities and, therefore, for public health. It will help the Government make the decision-making process more innovative and efficient. Health researchers should also incorporate the robust Geographic Information Systems (GIS) software into their studies. These measurements derived from GIS will facilitate more sophisticated and detailed analyses of the links between physical activity and planning parameters. The study can help healthcare systems, real estate, and businesses develop in various areas based on the needs of the people.

New resilient built environments can be suggested, such as developing walking or wellness corridors within each residential ward. Under the green urban mobility concept, walking and bicycle use should be the first option for transport for any activity. The environment should be such that it should be easily accessible and doable for people from all walks of life. This form of active transport should discourage cars and other motorised vehicles on specific stretches of road and walkways. The wellness corridors would make walking safe and with dignity. It could be designed or located around a water body or an avenue of trees, making it a welcoming environment for walkers. The wellness corridors should be combined with social infrastructure and green and open spaces within the ward. An amendment to the zoning regulations to this extent is suggested. Land pooling concepts can be adapted to achieve these goals.

Zoning regulations control the health and wealth of a city. More and more systematic studies with door-to-door surveys are needed to understand these complex relationships.

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Challenges for Children from the Marginalized Indian Communities

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Abstract

Literacy is a necessary first step toward social and economic development for India's underprivileged communities. They can not only gain access to the numerous basic services and rights to which they are entitled, but also improve their standard of living by expanding their options. Children from underserved Indian communities who do not have access to literacy materials such as books and stories, as well as formal language, reading, and writing development, do not develop their brains as well as their more privileged counterparts. A substantial proportion of India's youngsters are unable to demonstrate even the most basic levels of reading achievement, a problem that has been highlighted in children from low-income households, scheduled castes and tribes, and ethnic minority groups. This review study is based on the source of secondary data include books, articles, libraries, reports, personal sources, journals, newspapers, websites, government records and online data, etc. An aim in this review article to identify the factors that cause children to be marginalized within socially disadvantaged groups as well as the challenges and opportunities that hinder or enable marginalised and vulnerable children from gaining access to their right to education. To achieve equitable and inclusive quality education and lifelong learning for everyone, it is critical to not only give access, but also to guarantee that marginalized children stay in school. Marginalized groups are frequently left behind, depriving children from their right to education. Discrimination fosters an unwelcoming environment, which can lead to absenteeism and eventually the children's refusal to attend school. Present educational programmes should equip to address the requirements of children who are vulnerable to marginalization and exclusion for establishing a brighter future together.

Key words: *marginalization, education, communities, empowerment, socially, NGO, etc*

Introduction

Marginalization is defined as a process in which a group of people is driven to the outside of society. It is defined as a social process in which individuals are systematically denied access to rights, opportunities, and resources, preventing them from fully participating in the economic, social, and, most crucially, political life of the society in which they reside. The process prevents an individual, a group, a region, or a community from taking use of the benefits and possibilities that come with being a member of a society. As a result of their lack of engagement in the social, economic, and political arenas, where they are expected to contribute according to specific predetermined standards, they are forced into a complex state of disadvantage and impotence. The term 'marginalised group'

refers to a group of people who have been pushed to the edge of society. As a result, the process entails a polar connection between two groups of people: the marginalised and the dominating. And it is often used interchangeably with terms like oppressed, vulnerable, discriminated, disadvantaged, subjugated, socially excluded, alienated, or downtrodden, as coined by Paolo Freire, 'proletariat' as coined by Karl Marx, 'subaltern,' as coined by Gramsci, powerless, as elaborated by Michel Foucault, or exploited, vulnerable, discriminated, disadvantaged. To be clear, marginalised refers to people who have limited or no access to social, economic, or political opportunities, not only cultural ones. Social marginality, according to Peter Leonard (1984), is defined as "being outside the mainstream of productive activity or social reproductive activity."

Marginalization

In general, the term 'marginalization' refers to human societies overt acts or impulses to exclude, or marginalise, those whom they regard to be undesirable or without a useful role. 'Marginalized groups' are people who are excluded from a GROUP or COMMUNITY for the purpose of protection and integration. This restricts their options and means of surviving. "To be marginalised is to be put on the edges, and hence excluded from the privilege and power found at the centre," according to the Encyclopaedia of Public Health. Latin observes that “Marginality is so thoroughly demeaning, for economic well-being, for human dignity, as well as for physical security. Marginal groups can always be identified by members of dominant society and will face irrevocable discrimination.” These meanings appear in a variety of contexts, demonstrating that marginalisation is a nebulous and multifaceted notion. Marginalization is a topic that has been discussed in social, economic, and political circles. Marginalization can take many different forms, ranging from genocide/ethnic cleansing and other xenophobic acts/activities on one end of the spectrum to more fundamental economic and social disadvantages on the other. The types of marginalisation differ depending on the level of society's development, both culturally and economically. Women and other minorities can be added to this list. Low-income drug addicts are the most marginalised people in the so called First World. This intentional or intended marginalisation of people has elements of "Social Darwinism" to it.

Marginalization in India

India's polity, as the world's largest democracy, weaves tremendous diversity into a civilizational ethos of tolerance, respect, and mutual understanding. India has a population of 1.2 billion people. Hindus account for 80% of the population, followed by Muslims (13.4%, or 138 million), and a wide range of other faiths, including Christians (2.3%, or 24 million), Sikhs, Jains, Parsis, and others. India has 22 official languages, although there are over 1,650 dialects spoken throughout the country. India is a multi-cultural, multi-linguistic, multi-religious, and multi-ethnic secular country with a population of 1.2 billion people. India is also the most representative democracy, with nearly three million individuals elected to local self-government organisations, with women accounting for more than a third of those elected. India has made consistent economic development over the previous two decades, with continuous growth of 8.2% for the last five years, yet poverty has only decreased by 0.8%. On the UN Human Development Index, India is ranked 134th out of 187 countries. The Indian Constitution identifies socially underprivileged groups based on their caste. Scheduled Castes (SC), Scheduled Tribes (ST), Other Backward Classes (OBC), religious minorities, and women are all marginalised in the field of education because of their caste. Marginalisation is of many kinds: 1) Sex 2) Age 3) Disability 4) Ethnicity 5) Religion 6) Caste 7) Occupation 8) Migrants 9) Refugees, etc.

But sex, disability, ethnicity, religion, and caste are the main types of marginalisation.

Marginalisation on the basis of Sex

Discrimination between men and women has a long history and can be found all over the world, primarily in developing nations. It is a phenomenon that is perhaps as ancient as the human species itself. In India, women have historically faced survival disadvantages as compared to men (as in many other countries in Asia and North Africa, such as China, Pakistan, Iran, or Egypt). Until recently, mortality rates for women of all ages where higher than for men up to the ages of 35 to 40 years, contrary to what one might expect biologically, given medical evidence for lower age-specific mortality rates for women than for men when they receive symmetric care.

Mahatma Gandhi on Marginalisation of Woman

It is a slander to refer to women as 'the weaker sex;' it is man's unfairness to women. If brute strength is what is meant by strength, then woman is less brute than man. If moral power is understood by strength, then woman is infinitely superior to man. Is she not more intuitive, more self-sacrificing, more capable of endurance, and more courageous? The future belongs to women if nonviolence is the law of our existence. Who can make a more powerful emotional appeal than a woman?

Marginalisation on the basis of Disability

People with disabilities are among the world's most marginalised populations, according to the World Health Organization. Persons with disabilities have worse health outcomes, educational success, economic involvement, and poverty rates than people without impairments.

Marginalisation on the basis of Religion

On April 11, the Pew Research Center ranked India fourth worst in the world for religious intolerance, based on a study of 198 nations. Only Syria, Nigeria, and Iraq, all locations where sectarian violence is common, had higher rates of religious animosity in the country of 1.3 billion people. India is not the only country experiencing an increase in religious strife. Government limitations on religion and social tensions involving religion grew for the first time in three years in 2015, according to Pew. Hate crimes, mob violence, communal violence, religion-related terror, the use of force to prevent religious practise, harassment of women for not following religious dress codes, and violence over conversion or proselytising were among the cases studied by Pew.

Marginalisation on the basis of Caste

Dr. Manmohan Singh speaks at a New Delhi conference in the year 2006. During the Conference, Dr. Singh stated that despite 60 years of constitutional and legal protection and assistance, societal prejudice against Dalits still exists in many regions of the country. In our society, Dalits have faced discrimination that is fundamentally different from the problems that minority groups face in general. Apartheid was the only comparable practise to untouchability.

Five Major Challenges for Children from Marginalised Indian Communities

A group of marginalised children is defined as a group of children who live on the lowest or periphery of society. A group like this is barred from participating in mainstream economic, political, cultural, and social activities. The process of pushing something or someone to the outside of a group and assigning it a lower priority. This is primarily a societal phenomenon in which a minority or sub-group is marginalised, and their wants and wishes are overlooked. Marginality is a worldwide phenomenon that impacts millions of individuals. People who are marginalised have a limited amount of control over their lives and the resources they have access to. As a result, they are

limited in their ability to contribute to society. A vicious cycle is put in motion, in which their lack of good and supportive connections prevents them from engaging in local life, leading to increasing isolation. It is critical to address the issue of marginalisation since the goal of development is to establish an environment that allows individuals to live productive, healthy, and creative lives. The term 'development' is always used in a broad sense to refer to widespread engagement. A significant majority of people all across the world are marginalised, preventing them from contributing to growth. It is a complicated issue with many contributing aspects. At the policy level, this complicated and genuine issue must be addressed. Children poverty, sex, and caste status in society all contribute to and exacerbate mortality and morbidity among children. All of this has an impact on their diet, access to healthcare, the environment, and education. Poverty has a direct influence on children's mortality and morbidity. In India, a female child experiences prejudice and unequal access to nutritional food, as well as gender-based violence, as evidenced by the declining sex ratio and the use of technology to eradicate the girl child. These violations take numerous forms, including child labour, child trafficking, commercial sexual exploitation, and a variety of other types of violence and abuse. India, for example, has the world's biggest population of child workers under the age of 14 with an estimated 12.6 million youngsters working in hazardous jobs (2001 Census). In India, child trafficking continues to be a severe concern. While comprehensive statistics and information on child protection concerns is not always accessible, research shows that children in need of particular protection come from marginalised and socially excluded populations, such as scheduled castes and tribes, as well as the impoverished (UNICEF, India).

1. **Discrimination**- Despite the fact that India has been independent for 70 years and has implemented the Right to Education, children in the country continue to experience caste and wealth inequality. Because of the prejudice, parents are hesitant to take their children to school. To promote equitable and inclusive quality education and lifelong learning for everyone, it is critical to not only give access, but also to ensure that marginalised children remain in school. Children with special needs from underprivileged Indian communities should also be protected in their quest for an education.

2. **Gender Discrimination**- Educating girl children is seen as a waste of money in many slums and rural areas, as girls are seen to be destined primarily to be stay-at-home spouses. Lack of sanitary facilities for females, a lack of parental support and motivation, and a lack of gender-sensitive materials are all problems that deter girls from attending school.

3. **High Dropout Rate**- Despite extensive efforts to encourage children to attend school, six million children remain out of school, with two out of every five dropping out before finishing elementary school. These figures are substantially higher for children from low-income families. Lower learning results are common among historically disadvantaged and economically disadvantaged groups, owing to discrimination in schools and inadequate facilities. This necessitates teacher training that focuses on inclusive learning approaches and ensures more involvement from students of all backgrounds, as well as healthy interaction amongst them.

4. **Multilingual Diversity**- Many children from low-income families lack access to print reading materials in their native language or primary language. The importance of linguistic variety, which defines India's cultural richness, is sometimes overlooked in schools. It's critical to have an impact on a multilingual reading and writing culture. There are as many as eight

different languages and dialects spoken in several places, which differ from the language used in the classroom.

5. **Lack of Vocational Training**- It is frequently observed that India's educational system utterly disregards the need of vocational training. As a result, education is viewed as irrelevant 'bookish learning' by parents who want to ensure that their children can earn a living as soon as possible. This is one of the numerous reasons why India's school dropout rates are persistently high.

Problems of SCs/STs/OBCs and Minorities – Socially Disadvantaged Group

In Indian society, the SCs, STs, and OBCs have had significant difficulties. Despite various efforts made by the Empowerment of the Marginalized (Women, Children) Human Security administrations since independence, their situation has not greatly improved, but it cannot be disputed that it has been steadily improving. Despite the government's execution of a wide range of programmes and schemes, marginalisation persists, as stated in one official report: 'on the delicate analysis of the plans from the point of view of implementation, it appears that much is said than done'. To put it another way, there is still a lot of work to be done.' Since its foundation in 1950, the Indian Constitution has expressly protected the rights of SCs and STs. Legislation to end untouchability and shield them from society's crimes has been a critical step in empowering these groups of people. SCs made up 15.8% of the overall population in 1981, while STs made up 7.8%. In 2001, the SC population had increased to 16.2% and the ST population had increased to 8.2%. Their distribution across the country, however, is uneven. STs account for over 90% of the population in Mizoram, whereas they account for less than 1% in Goa. The same is true for STs, whose numbers are substantially greater in the North-Eastern states. Following the Mandal Commission in the early 1990s, the OBCs' status gained a lot of attention. Although adequate figures are not available, the OBCs make up a higher percentage of the population (almost 40%) than the SCs and STs combined. According to a recent report, the federal and state administrations, including union territories, have identified 2176 and 2551 OBC communities, respectively. The impoverished peasantry of the zamindar period; groups that provided traditional services like as barbers and dhobis; craftsmen; and communities with limited resources or skill sets are among them. In addition, the OBCs are a fairly diverse population. The empowerment of the country's socially disadvantaged groups, such as the Scheduled Castes (SCs), Other Backward Classes (OBCs), and Minorities, remains a top priority on the country's developmental agenda, as they continue to lag behind the rest of society due to their social and economic disadvantage. In 2001, SCs accounted for 179.7 million people, or 17.5% of the total population, while Minorities accounted for 188.9 million people, or 18.4% of the total population (projected on the basis of the trend of their decadal growth rates, in the absence of the data of 2001 Census). According to the Mandal Commission, OBCs account for 52% of the entire population of the country (appears to be on a high side because of the possibility of certain communities of SCs and Minorities featuring in the list of OBCs). For a long time, the aforementioned communities have suffered in all main aspects of life – social, economic, political, legal, and others; these communities suffer, however the severity and extent of their suffering varies depending on caste, tribe, or community. They also find it difficult to have simple access to financing and credit, preventing them from engaging in income-generating activities. They are also impoverished and exploited by moneylenders due to a lack of economic assets like as land, cattle, and capital. They are ignorant of the legal protections in place to ensure that they receive justice and priority care.

Marginalized Groups:

As previously stated, marginalisation can occur at several levels at the same time, including international, national, regional, and group levels. We shall explore the most vulnerable marginalised groups in practically every civilization in this part.

i) **Women**- Marginalization is one of the forms of poverty under various economic conditions and under the impact of unique historical, cultural, legal, and religious variables. To put it another way, women may be excluded from some vocations and occupations, absorbed into others, and marginalised in yet others. Women (or men) do not show themselves as a homogeneous group with shared interests, talents, or habits. Lower-class, lower-caste, uneducated, and poor-region women have a different level of marginalization than their better-off counterparts.

ii) **People with disabilities**- People with disabilities have had to fight unfair assumptions, damaging stereotypes, and unreasonable fears for ages. The stigmatisation of disability resulted in generations of disabled people being socially and economically marginalised, and this, like many other oppressed minorities, has left disabled people impoverished for centuries.

iii) **Ethnic Minority**- Ethnic minorities are a group of marginalised people of the same race or ethnicity who have a separate culture. A minority refers to a sociological group that does not make up a politically dominating voting majority of a society's overall population. A numerical minority is not always the same as a social minority. It might be any group that is different from the dominant group in terms of social standing, education, employment, income, or political influence.

A minority group usually exhibits the following characteristics

- It is subjected to discrimination and oppression.
- They have physical or cultural characteristics that mark them apart and are disliked by the dominant group.
- They have a feeling of common identity as well as shared difficulties.
- They have a set of social rules that govern who belongs and who doesn't.
- They have a proclivity for marrying inside their own group.
- Ethnic minorities exist in every big community. They might be nomadic groups that are migratory, Indigenous, or landless. Subordinate ethnic groups may form a numerical majority in some regions, such as Blacks in South Africa under Apartheid. In a variety of ways, international criminal law may defend the rights of racial and ethnic minorities. One of the most prominent issues is the right to self-determination. Religious minorities practise a faith that differs from that of the majority. Religious minorities exist in almost every country. In the West, it is now widely accepted that people should have the freedom to choose their own religion, including the freedom to have no religion (atheism or agnosticism), as well as the freedom to convert from one religion to another. In Egypt, for example, a new identity card system compels all individuals to declare their faith, with the only options being Islam, Christianity, or Judaism.

iv) **Caste:** The caste system is a rigorous hierarchical social order founded on the

concepts of purity and contamination. Brahmins are at the pinnacle of the social order, while Shudras or Dalits are at the bottom. Dalits are marginalised in all aspects of their lives, resulting in violations of essential human rights such as civil, political, social, economic, and cultural rights. A sizeable percentage of the lower castes and Dalits still rely on others for their survival. Dalits does not relate to a caste, but rather to a group of people who are oppressed, socially disabled, helpless, and destitute. They have little purchasing power, live in substandard housing, and have limited access to resources and entitlements. Physical, psychological, emotional, and cultural abuse are all forms of structural discrimination against these groups that are sanctioned by the social structure and system. In the villages, physical segregation of their communities is prevalent, forcing people to live in the most unsanitary and inhospitable conditions possible. All of these issues have an impact on their health, access to healthcare, and overall quality of life. Malnutrition is common among underprivileged communities, leading in increased mortality, morbidity, and anaemia. The socioeconomic status of the marginalised groups has an impact on their access to and utilisation of healthcare. Caste-based marginalisation is one of the world's most important human rights challenges today, impacting about 260 million people, the majority of whom live in India. Social and economic isolation, segregation in housing, denial, and limits of access to public and private services and employment, and enforcement of particular sorts of jobs on Dalits, are all examples of caste-based discrimination, culminating in a modern-day slavery or bonded labour system. However affirmative action and legal protection, the severity of caste-based marginalisation has decreased in recent years.

v) **Tribes**- Tribes are marginalised in all countries, whether affluent countries such as the United States and Australia, or emerging and poor countries in Asia and Africa. Many Australian Aboriginal tribes, as well as many European tribes, are marginalised. The Scheduled Tribes population in India is estimated to be approximately 84.3 million people, and they are socially and economically disadvantaged. They are mostly landless and have minimal control over natural resources including land, forest, and water. A substantial percentage of agricultural labourers, casual labourers, plantation labourers, industrial labourers, and other workers are from this group. As a result this emerged into poverty, a lack of education, and limited access to health-care services.

vi) **Elderly**- In life, ageing is an unavoidable and inexorable process. The growing demographic ageing of the senior population is a prominent component of the global ageing process. The 80-year-old, or over-age group, is rising faster than any younger portion of the older population in most countries, independent of their geographic location or developmental stage. According to the UN Report on World Population Ageing 1950-2050, those aged 80 and above account for more than 3% of the population in Northern America and almost 3% of the population in Europe, compared to less than 1% in Asia, Latin America, and the Caribbean, and less than 0.4% in Africa. Over the next 50 years, a regional divide is expected to prevail. In the more developed regions, around one out of every ten people will be 80 or older by 2050, compared to one out of every 30 in the less developed parts. Only one in every 100 people in the least developed countries will be 80 or older. By 2050, at least 10% of the population in nine nations, predominantly in Europe, is expected to be 80 years old or older. In many nations, the demographic makeup is

shifting, for example, in Eastern and Northern Europe, women now outnumber males by more than 5 to 3 among those aged 60 or over, thus include not just the old, but also the elderly women. In today's society, the elderly is viewed as the most neglected segment of the population. Many children of old family members regard expenditures on aged care, such as health and nutrition, as a waste of money. The stereotype that elderly persons are more likely to suffer from such illnesses adds to their neglect. As a result, the majority of them are demoralised and emotionally shattered, and some even leave home when the acts of neglect reach their breaking point.

Marginalization in Communities

At both the local and macro levels, marginalisation occurs. The next part will look at how marginalisation manifests itself at several levels, including individual, group, community, and global. Many groups are pushed to the margins. This section will focus on Aboriginal groups and women in a variety of places throughout the world. Colonization has resulted in the marginalisation of Indigenous peoples. Aboriginal groups lost their land, were driven into impoverished places, lost their means of income, and were excluded from the labour market as a result of colonialism. Furthermore, forced assimilation resulted in Aboriginal groups losing their culture and values, as well as their rights in society. Various populations in Europe are still being side-lined from society as a result of the creation of practises, laws, and programmes that cater to the requirements of white people rather than the needs of disadvantaged groups. Women's marginalisation is a second example. Mitha Moosa sees the feminist movement as a direct response to white women's marginalisation in society. Women were not allowed to work outside the house, and their domestic work was undervalued. Feminists advocated that men and women should be treated equally in the workplace, the public and private sectors, and at home. They also worked on labour regulations that improve access to employment and acknowledge childrearing as a vital type of work. Women are still underrepresented in executive jobs and earn less than males in high management positions today. Mahatma Gandhi once remarked "Women are referred to be a man's better half as long as she does not have the same legal rights as males; as long as the birth of a girl is not greeted with the same enthusiasm as the birth of a boy, we should be aware that India is suffering from incomplete analysis. Women's oppression is a rejection of **Ahimsa**."

Socially Marginalized

According to Merriam-online Webster's dictionary is "to reduce to an insignificant, or powerless position within a community or organisation". Ghana The idea of marginality is commonly used to analyse socioeconomic, political, and cultural domains where disadvantaged individuals struggle to get access to resources and full involvement in social life, according to S. Gurung and Michael Kollmair. In other words, disadvantaged persons may be overlooked, excluded, or neglected on social, economic, political, and legal levels, leaving them vulnerable to livelihood changes. "Socio-economic marginality is a condition of socio-spatial structural process in which components of society and space in a territorial unit are observed to lag behind an expected level of performance in economic, political, and social well-being, compared with average conditions in the territory as a whole," according to Sommers et al. This is probably something that some of you have seen in the classroom or on the playground. If you are not like the majority of your classmates, for example, if you have a different taste in music or films, if your accent distinguishes you from others, if you are less chatty than others in your class, if you don't participate in the same sport as many of your classmates, or if you dress differently, you are

unlikely to be considered 'in' by your peers. As a result, you frequently feel like you are 'not with it,' as if what you say, feel, think, and do, as well as how you act, aren't quite correct or acceptable to others. Their marginalisation may be due to the fact that they speak a different language, have distinct customs, or belong to a different religious group than the majority of the population. They may also feel marginalised because they are impoverished, have a "low" social position, and are perceived as less human than others. Marginalized groups are sometimes viewed with animosity and terror. Because of their perception of difference and exclusion, communities are unable to access resources and opportunities, as well as exercise their rights. They feel helpless and disadvantaged in comparison to stronger and dominating elements of society that own property, are rich, well-educated, and politically influential. As a result, marginalisation is rarely felt in just one area. Certain groups in society are marginalised due to a combination of economic, social, cultural, and political circumstances.

Education of Marginalized Children

The current situation in India, inequity in educational possibilities has become a big concern. It is particularly relevant now since globalization's growing influence is jeopardising underprivileged people's educational possibilities. Although the provision of basic education is the responsibility of the state in most countries, experience shows that the state's role as the primary provider of educational services has diminished over time due to privatisation and commercialization of education, resulting in the denial of education to marginalised groups. According to many researches, children from socially and economically disadvantaged neighbourhoods have little opportunities to receive a basic education, and the majority of them are working children. There is widespread consensus that those who do not attend school belong to the Scheduled Castes (SC), Scheduled Tribes (ST), minorities, urban poor, other backward castes, and individuals who live in distant rural regions. It is well documented that a sizeable portion of the kid population in rural regions belongs to socially disadvantaged households and lacks access to basic schooling. According to the National Institution for Minority Educational Institutions' annual report (2016-17), Scheduled Casts students make up 13.9% of overall enrolment while Scheduled Tribes students make up 4.9%. Other Backward Classes account for 33.75% of students. Muslim minorities account for 4.7% of pupils, while other minorities account for 1.97%. According to the study results, 4.67% of students are Muslim minorities, while 1.97% are from other minority communities. Male students outnumber female students in the Muslim Minority, whereas female students outnumber male students in another Minority. The literacy rate of a society, as well as its people' access to education, will show how far it has progressed. According to the findings of the poll, the national literacy rate is steadily growing. The literacy rate was 18.32% in 1951 and 72.98% according to the most recent senses data. However, when we look at advancement in terms of location, gender, socioeconomic class, and other factors, we may see huge discrepancies and inequities. Educational success differs depending on gender and location. According to statistics, urban males and females have higher educational attainment than rural males and females. Regardless of location, women's educational attainment tends to be lower than that of males. The 2011 census report's area and gender-based literacy level statistics completely revealed the current situation of educational accessibility of males and females in various localities. When examining the literacy rate from the most recent census data, it is clear that, while overall literacy has grown throughout the decade, there remains a significant discrepancy between male and female literacy. In the majority of states, female literacy is significantly lower than male literacy. The disparity in educational

attainment between urban and rural areas is much more pronounced. Even after seven decades of independence, there are still disparities in access to high-quality education depending on gender and geography. The rural literacy rate is consistently lower than the urban literacy rate in all states. The urban literacy rate is 84.98%, whereas the rural literacy rate is 68.91%. The disparity in literacy between rural and urban areas reveals India's distant areas' lack of educational resources. There are inter-gender as well as intragroup disparities among rural males and females, in addition to inequalities across social groupings. The 66th round National Sample Survey Organization of the Government of India provides a detailed description of the educational levels of various socioeconomic categories. When reviewing the statistics, it becomes evident that the ST and SC populations have the lowest levels of education. Only 2.2% of ST and 2.7% of SC students in rural areas completed high school. The situation of rural women is far worse. Only 0.9% of ST and 1.1% of SC females earn a bachelor's degree or higher. This pattern is being replicated at the secondary level as well. Rural ST males have a higher secondary education attainment rate of 5.7, whereas rural ST females have a higher secondary education attainment rate of 2.7. It is obvious that rural individuals, regardless of gender, have limited access to higher education. The literacy level of marginalised persons in urban areas is higher than in rural areas, although it lags behind that of other communities. It has been observed that the educational accessibility of men from the disadvantaged part is lower than that of both males and females from the other society, and that there are gender differences within the same socioeconomic strata. As a result of a thorough examination of India's newest senses report, it is obvious that the gap in educational accessibility between disadvantaged individuals and other socioeconomic groups is wider, particularly in the higher education sector. Primary and upper primary school dropout rates were lower than secondary school dropout rates, according to the Ministry of Human Resource Development. Engagement in economic activities is shown to be the reason for the dropout for boys from school while females are obliged to participate in domestic tasks, especially in the rural region.

Measures for the Empowerment of the Marginalised Children

The International Labour Organization (ILO), a United Nations special agency, leads the most significant initiatives to end child labour abuses across the world. The ILO has established various Conventions and Recommendations regulating child labour since its foundation, including a minimum age of 16 for admittance to all work, a higher minimum age for particular forms of employment, mandatory medical examinations, and night work regulation. The ILO, on the other hand, does not have the authority to enforce these agreements; it relies on member countries' voluntary compliance (ratification). Special commissions were established to investigate and assess the prevalence of underage labour in the country. Projects such as the ILO's International Initiative on the Elimination of Child Labour and the India-US project, which focuses on child labour rehabilitation, and the Government of India's National Child Labour Project have achieved and continue to make substantial advances in the fight against child labour. The government, companies, and employees/unions are all becoming more aware of the difficulties, and parents are being persuaded and assisted. NGOs are also well-represented in the fields of education and child labour development. The rescue and rehabilitation of girl children receives special attention. The Indian government and state governments have made a number of steps to address the issue of child labour. The Directive Principles of the Indian Constitution ban the mistreatment of children under the age of 14 years. India has ratified many ILO treaties against child labour. The

comprehensive Child Labour Act of 1986 was approved by the Indian government. Child labourers can be rescued, and those who mistreat children can be prosecuted. To eradicate child labour, all children must get free and compulsory education until they reach the age of sixteen. The Right to Education Act was passed by the Government of India, however it must be carefully followed.

Conclusion

Over 30.3% of the world's poorest youngsters live in India. Large swaths of India's population are marginalised. In a general sense, over 90% of the unorganised labour force is marginalised, although this is a big and diversified group. Women, particularly impoverished rural women; SCs; STs; OBCs; children; bonded labour; the disabled; and the old/aged are some of the more specific major groups. These children, particularly females, face systemic discrimination and exclusion, which manifests itself in higher school dropout rates and greater vulnerability to child labour and human trafficking. There are several development projects for poverty reduction and social security in rural regions, but direct help is conspicuously absent. To stop this unfairness, social protection is required. This conclusion will enable us to comprehend the significance of marginalised children and analyse the steps that may be taken to improve their situation. The marginalisation of such groups has resulted in development that is devoid of social inclusion and fairness. This study revealed the substantial contributions to empowering these marginalised groups, and there has undoubtedly been progress in this regard, much more needs to be done. While these challenges must be addressed, the government has achieved tremendous progress toward its goal of universal education since the Right of Children to Free and Compulsory Education Act was passed in 2009. By providing gender-sensitive study materials and engagement programmes, NGO are able to carry out extensive programmes of education access and enrolment as well as conversation at community events to promote the importance of education in marginalized children who has helped to become the first-generation learners in their families and societies. We need enlightened policies that promote practice among vulnerable communities.

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Is the Global Housing Market Broken?

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Introduction

Housing is not just an economist's playground. Sociologists see it as a family's source of comfort. Financial experts view it as an investment. Politicians use it to gain electoral support. Therefore, fundamental issues in the economics of housing, such as choked supply, inflated prices, and negative externalities, have far-reaching implications.

The UN estimates that two billion new homes must be constructed by the end of this century to cope with rapid population growth.[1] The inability of supply to keep up with demand has caused housing shortages worldwide. Higher construction costs due to supply-chain bottlenecks caused by geopolitical instability, coupled with rising interest rates to deal with inflationary pressures, have made the issue of affordable housing more pertinent than ever. Therefore, it is useful to analyse the underlying causes and discuss global best practices to remedy the housing market.

Funding

To bridge the shortage, building more houses may seem like a straightforward solution. However, how can governments finance such capital-intensive projects? Channel household savings towards constructing social housing. France's 'Livret A,' a special state-guaranteed savings account, offers a high, tax-free interest rate that makes it a popular choice among citizens. A government agency centralises 65% of deposits from all Livret A accounts to fund subsidies for social housing.[2] Although paying high interest rates admittedly imposes fiscal pressure, such directed intervention is necessary since social housing is a merit good that is underproduced in the free market.

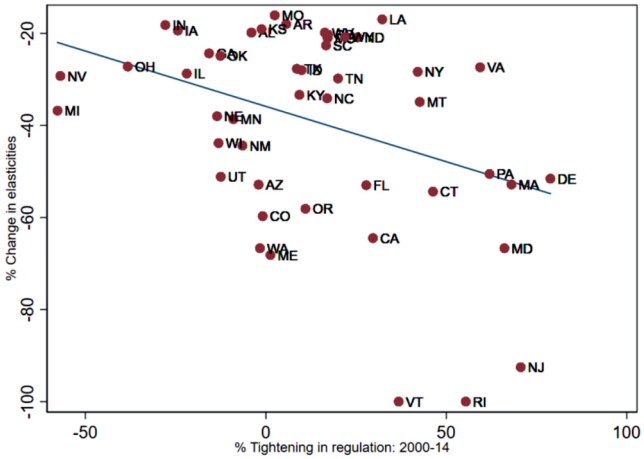
This model is not pro-cyclical, which makes it especially effective during recessions, when there is higher demand for affordable housing. Households have a higher propensity to save, which increases the funds available through the scheme to cope with the higher demand. This allowed Livret A to ramp up construction in the immediate aftermath of the 2008 Financial Crisis. In fact, the funding for this scheme reached an all-time high in 2020, during the COVID-19 economic slowdown.[3]

Land-Use Regulation & Zoning

Housing supply is becoming increasingly price inelastic due to zoning laws that have introduced multi-layered conditions and lengthy approval processes for builders. American states that had greater tightening of land-use regulations between 2000 and 2014 witnessed larger declines in supply elasticities (Figure 1). Price inelastic supply indicates that producers are not very responsive to changes in price and demand. It aggravates the

issue of affordable housing because a more inelastic supply suggests that an increase in demand drives a greater increase in prices than in quantity produced.

Figure 1[4]: Relationship between Land Regulation and Supply Inelasticity in US



Complying with zoning regulations imposes significant costs and inflates the value of the house. Costs associated with zoning regulations contribute to 45% and 25% of the price of an average American and British home, respectively.[5,6] This has limited opportunities for developing low-cost housing like boarding houses and residential hotels, in which 30% of the urban American population once lived.[5] Current zoning laws lead to inefficient use of already scarce land. 75% of residential land in the US is reserved for single-family housing. The area used for a single-family unit can fit a three-story, six-unit condominium.[7] Rezoning these neighbourhoods into multifamily housing areas increases the availability of affordable housing. However, this process is easier said than done. NIMBY (not-in-my-backyard) supporters often pressurise local governments into blocking zoning reforms to protect the value of their properties.[8] To counteract this pressure, President Biden introduced a policy wherein jurisdictions with progressive zoning reforms are rewarded with federal grants, a large proportion of which is used for development of public transport infrastructure.[9] This helps avoid the increased traffic that compact development would otherwise cause and addresses the reservations of NIMBY supporters regarding the detrimental impact of up-zoning on their quality of life. A similar approach could be adopted by countries like Netherlands and Germany, which are facing an issue of low development density due to their zoning laws.[10]

Rezoning is a powerful tool that local governments can use to adjust to population changes. It is especially useful for emerging cities experiencing high urbanisation, which causes overheated housing markets. To adapt to evolving dynamics, central governments could make it mandatory for local authorities to re-evaluate zoning regulations every 10 years based on the most recent population census. Additionally, governments could use 'Density Bonuses' to incentivise compact development and efficient use of land. First introduced in New York City in 1961, this approach is only adopted in a handful of countries today, including Canada and Brazil.[11] Real estate developers are permitted to construct more units on a plot of land than the limit set by the area's zoning laws, in exchange for building an agreed number of affordable houses in the neighbourhood.

Taxation Policies

The insufficient supply of housing can also be attributed to the counterproductive nature of property taxes, which discourage efficient land usage. Currently, an owner is incentivised to limit the development of real estate on his land to avoid paying higher property taxes. This problem could be remedied by replacing property taxes with 19th century economist Henry George's Land Value Tax (LVT), which is levied on the value of land owned rather than the property on it.[12] Since the LVT paid by a landowner remains constant regardless of what he does with the land, he is incentivised to build more houses to recover the LVT paid. While property tax creates deadweight loss since it

discourages development and reduces the quantity supplied, LVT avoids this problem because the supply of land is perfectly inelastic.

Land value tax and rezoning single-family housing areas are complementary policies that, when used together, can effectively increase housing supply. Up zoning a previously single-family area increases the value of that land since it now has more productive potential. It raises the land value taxes for single-family landowners, which could encourage them to use their land optimally to discharge the higher tax burden.

Financialization of Housing

The build-up to the 2008 Financial Crisis sowed the seeds for the rapid financialization of housing. There has been a stark shift in the general perception of real estate: from a 'home' that provides security to a family, to a 'house' used as a vehicle of wealth.

Buy-to-sell strategies involve real estate flipping that overheats the market. To protect the interests of end-use buyers and discourage excessive speculation, economies can take inspiration from Singapore's Seller's Stamp Duty, which imposes heavy taxes on investors who resell property within three years of first purchasing it.[13] In addition to cooling down housing markets by reducing the frequency of property trading, this scheme provides the government with funds to finance national affordable housing projects.

The Short-Term Rental (STR) market has emerged as a favoured investment tool in residential real estate and popularised the buy-to-let strategy. It offers flexibility to investors as they can profit from renting their properties, while reserving the right to repossess and sell them at any time. Over 60% of US listings on Airbnb are owned by commercial hosts and investors.[14] Thousands of affordable homes are consequently being pulled away from the traditional housing market, causing shortages that inflate rent and house prices. To combat it, governments can enforce a "One Host One House" policy, wherein no host can have more than one listing on the platform, which deters investors from exploiting the market. The implementation of this policy in New York City, Portland, and San Francisco led to a 2.3% and 1.3% drop in rental and house prices, respectively.[15]

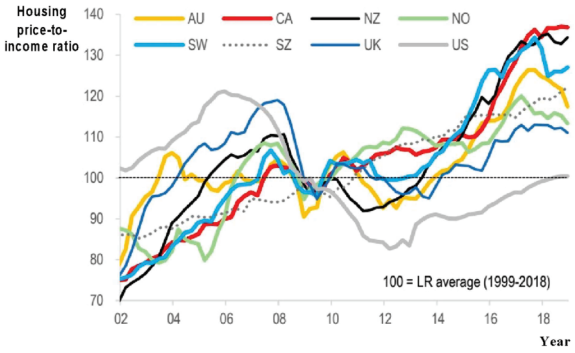
Many governments provide tax deductions on housing loans to promote home ownership. However, these incentives often disproportionately benefit wealthier investors rather than helping first-time homebuyers afford a house. It promotes the buy-to-leave strategy as the incentives allow investors to buy properties and leave them empty as they appreciate, while simultaneously generating tax benefits. This has led to the formation of 'ghost towns' in upmarket districts like UK's Chelsea and Kensington or Cambodia's Phnom Penh, where almost every house has an owner but lacks an inhabitant.[16,17] Therefore, tax deduction policies could be altered to make them only applicable to first-time buyers.

Overleverage & Behavioural Biases

Economies globally have seen an upward trajectory in housing price-to-income ratios (Figure 2), indicating that median house prices are growing faster than household income. The disproportionate increase in housing prices has necessitated homeowners to take larger mortgages. Behavioural biases have worsened the problem. Since the average consumer makes relatively infrequent real estate purchases, he does not have sufficient experience to make a fully informed decision independently and instead exhibits herding behaviour. Investors engage in risky, irrational behaviour and take out large mortgages that they may not be able to repay due to the overconfidence and optimism biases, seen when investors overestimate their abilities and hold unrealistically positive future expectations.

Consumers should be informed of the behavioural biases that distort their judgement while buying real estate through awareness campaigns. If financial regulators constantly warn stock investors about the risks of short-term trading and possible formation of bubbles, why cannot a similar practice be implemented for the housing market? To address information asymmetry between buyers and sellers, governments can use the transaction data that they capture while collecting real estate stamp duty to establish a centralised, open-access repository. This database would allow prospective homebuyers to access data regarding housing transactions in a particular period and geography, while masking the identity of the buyers and sellers. It would help consumers make informed buying decisions and lead to efficient price discovery.

Figure 2[18]: Global Housing Price-to-Income Ratios (1999-2018)



Overborrowing causes an increased number of defaults, foreclosures, and fire-sales, which give rise to externalities causing economic inefficiency. In making the decision to default, the owner only considers private costs and benefits and not external costs like the lender's losses and distress.[19] Furthermore, fire-sales due to the inability to repay mortgages cause pecuniary externalities, which arise when the actions of an economic agent affect third parties by impacting market prices.[20] Borrowers often use houses as collateral against large loans. Their borrowing capacity is, hence, heavily dependent on the market value of their houses. A large-scale surge in fire-sales can cause an overall drop in the value of houses in the market, which has a negative externality on people using houses as collateral because it tightens their financial constraints. Therefore, foreclosures and fire-sales indicate significant overborrowing in the real estate market which creates welfare loss.

To reduce the frequency of defaults and the associated economic inefficiency, governments can introduce policies that streamline debt renegotiation between borrowers and lenders. Several logistical issues, including debt securitisation and information asymmetry between the borrower and lender, obstruct this process. Negotiating revised mortgage contracts with each customer individually is a large financial burden that the lender is often unwilling to bear. Therefore, governments could provide financial incentives to lenders to renegotiate mortgages, as did President Obama through the Home Affordable Modification Program in 2009. However, it successfully renegotiated only 33% of the contracts due to insufficient incentives for intermediary servicers, who profited more from foreclosures than renegotiations.[21,22] Hence, schemes to encourage renegotiation should provide sufficient incentives.

Lenders often go overboard in their desire to grow their asset books, and they aggressively value real estate collateral to justify a higher lending amount. Governments should lay out a property valuation framework for lenders to ascertain the collateral value to ensure consistent valuation of property across lenders. This would limit excess leverage in the system and force lenders to compete on price and service rather than mere ability to lend more against the same collateral.

Conclusion

Plagued with both supply-side and demand-side issues, the housing market today is broken. While political commentators blame the Wall Street Goliaths for overheating the real estate market, the

soaring prices are also a result of decades of slowdown in growth of supply, with total housing inventory reaching an all-time low in January 2022 in Canada and the US.[23,24] Recognising that the culprits responsible for this crisis are all around us – the friendly neighbour who supports a NIMBY agenda, the popular local government that enforces exclusionary zoning and counterproductive taxation, the ordinary homebuyer who borrows beyond his means – is the first step towards solving this issue.

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Human Development in an Unequal World[1]

Book Review
by Dr. Vibhuti Patel,
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This volume is an exhaustive academic endeavour to contextualise human development in a world which is unequal and promotes unfreedoms because of socio-political, cultural, and educational inequalities and multiple marginalities based on caste, class, race, ethnicity, post-coloniality and gender. The authors have provided deep insights on the concept of Human Development (HD) developed by Prof. Mahbub-ul-Haq and expounded by Indian Nobel laureate Prof. Amartya Sen and, popularised by United Nations Development Programme (UNDP) through its regular publication of Human Development Reports since 1990.

In the Preface, the authors state that equity and justice are two pillars of human development. While the authors critique the Human Development Index (HDI) as the be all and end all a nation's achievements, they are equally critical of mainstream theorists who promote the human development approach as a 'do-gooder preoccupation' (p. xx). The authors passionately believe integrating human development concepts with developmental intervention practices guided by the capabilities approach. Integration of Sustainable Development Goals (SDGs) enables countries to tackle complex developmental challenges and find solutions for people's problems. The volume is guided by a multidisciplinary ethos that brings out “rich perspectives emerging from sociology, philosophy, ethics” (p. xxi). Contemporary challenges such as neo-liberal globalisation and low socioeconomic development in the global south have posed major threats to human development efforts; macroeconomic stabilization policies at the behest of the Word Bank and International Monitory Funds have resulted in the drastic slashing of social sector budgets. This has served the interests of crony capitalism at the cost of Human Development initiatives for masses. The authors make a compelling case for reversal of the logic of 'might is right' to reduce human miseries.

Chapter 1 introduces readers to the development discourse over the last seven decades, which witnessed major civilisational crisis because of enormous destruction of human lives, nation states and the morale of people in the aftermath of the 2nd World War. In the post war period, rising inequality and the concentration and centralisation of economic resources in the hands of a microscopic minority demanded development investment through a welfare state, which prioritised government expenditure on social sector budgeting to support quality education, public health, and subsidised housing. The national liberation struggles in Africa, Latin America and Asia shaped the development discourse. Among postcolonial nation states, 30 countries embraced the democratic system of government by the 1970s and, another 60 countries by the 1990s; the collapse of the Union of Soviet Socialist Republic (USSR) resulted in the creation of 15 new nation states in 1991. Against this backdrop, the authors juxtapose

[1] *K. Seeta Prabhu and Sandhya S. Iyer, 2019, Delhi: Oxford University Press, pp. xxiii+370, ISBN: 0-19-949024-4*

the concept of 'human capital' for high economic growth, as popularised by Gary Becker and Jacob Mincer during the 1960s, which uses the rights-based approach to guarantee human dignity and human rights. The Universal Declaration of Human Rights (1948) declared the right to life as inalienable, indivisible, interdependent and interrelated with all other rights. By the 1970s, the International Labour Organization (ILO) accepted the "Basic Needs Approach", which gave priority to meeting the basic needs of people. This later paved the way for a multidimensional human-oriented approach to development — Human Development Index (HDI), Gender Development Index (GDI), Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs) for measuring a country's achievements.

Chapter 2 delves into the conceptual aspects of human development, universally understood as living a long and healthy life, a decent standard of living with dignity and substantive freedom to pursue interests. This can be ensured through the expansion of capabilities (as argued by Nussbaum) in terms of threshold capabilities, internal capabilities, external capabilities, and combined capabilities. The authors discuss the influence of human diversity and plurality of capabilities and the efforts made by different countries to address MDGs. Developmental transitions pose various environmental, personal, and social challenges that impact equitable distribution of resources and present diverse outcomes for MDGs and SDGs in areas such as child-labour, homelessness, or education for girls. The authors discuss human development in the context of equity and productivity in a state-society relationship and state that equity matters "for restructuring of the prevailing economic and power relations" (p. 52). They make a convincing case for redistributive and affirmative macroeconomic social policies and institutional development that result in equality of opportunity. Here they give an example of the Malaysian Government policy interventions to reduce ethnic inequality and the non-governmental initiative of the Grameen Bank in Bangladesh to encourage people's participation and empowerment of women. The authors also stress that creating dignified conditions of work and respecting individual values result in human freedom. For example, regenerating natural resources, rural regeneration, reforestation for sustainable development will liberate a large majority of the world population from the shackles of hunger, deprivation, and poverty. The authors support the rationale provided by Haq and Sen that challenge the supremacy of the GDP and affirm, "Being human centric in nature, the HD approach includes both, capabilities, and entitlement processes that shape freedoms, choices, and wellbeing. (p. 64)

Chapter 3 titled, 'Human Flourishing and Wellbeing', which explains human history "in terms of the West and the rest" (p. 974), is an epistemological perspective on ideologies, identities and cultures that give shape to freedom, choices, and wellbeing. She compares the vertical imposition of the 'one child norm' to reduce the Total Fertility Rate (TFR) by the state with heavy penalty for couples who produce more than one child to Kerala's success in attaining below stabilisation TFR through comprehensive investments in HD and promotion of women's agency. Kerala achieved reduction in population growth through choice, freedom and granting the decision-making power to couples.

Chapter 4 on 'Measurement of Human Progress' examines a variety of estimates evolved by the UNDP, individual scholars, and international institutions. Gender economists and ethnographers have pointed out biases in indicators. For example, as per the World Happiness Index (WHI), Tibet ranks extremely high; however, women rights activists have criticised this index because it does not include violence against women and children. So WHI is concerned only about happiness of men.

Gender economists have cautioned about intersectionalities of caste, class, race, religion, ethnicity, and gender when monitoring progress across various MDGs and their targets. Gender experts have pointed out 17 goals and 169 targets of SDGs for gender mainstreaming.

The HDI is calculated through triangulation of data. Governance, quality of service, and sense of security are important indicators. “Human development paradigm has revolutionised methodologies for measuring human progress in multiple ways” (p. 115). The authors state that without people-centered ground level data, policy interventions cannot be effective.

Chapter 5 titled ‘Economic Growth and Human Development’ focuses on the development dilemma between equity and efficiency. The realisation that economic growth under the neo-liberal regime has not contributed to HD has also forced development thinkers to identify challenges. HDRs published by the UNDP highlight structural inequalities such as market dominated macroeconomic growth and stabilization policies for the dominance of multidimensional poverty and other forms of vulnerabilities in the developing world. Their ripple effect on poverty reduction, egalitarian development policies regarding food, health, water, education resulted in massive immiseration and marginalisation of the majority of masses.

The authors begin the following chapter on ‘Social Sector in Human Development’ by defining human capital as ‘stock of skills and productive knowledge embedded in people.’ They endorse Dreze and Sen's approach to HD that policy reforms should provide social security to informal sector workers, the poor and socio-economically deprived sections to cope with contingencies. This can be achieved through the introduction of promotional social security schemes which guarantee universal education, health, food, water, and housing security to enhance capabilities of vulnerable populations. Social security was defined as 'freedom from want' during the post-World War II era. For example, innovative policy experiments for enhancing entitlements in terms of Universal Access to Registered Health Services in Thailand, monitoring of school education by BRAC in Bangladesh, Botswana's policy on HIV-AIDs, mathematics teaching to out-of-school children in Sudan, PDA and the MGNREGA in India are replicable. The authors give examples of empowerment and agency—access to education and reduction in dropout rates in Ethiopia; microfinance for women through Kudumbshree in Kerala; community upgradation programmes in Thailand; payment for ecosystem services in Uzbekistan; programmes to reduce inter-generational poverty in Brazil through cash grants to the poorest to improve education, health, and nutrition—across countries. The chapter also mentions about productivity enhancing measures adopted by nation states such as skill India schemes and viability of agriculture in Kenya. The authors advocate for right based policy interventions such as implementation of mid-day meals for school children, food security, Mahatma Gandhi National Rural Employment Generation Scheme, Right to Education (RTE) in India and conditional cash transfer schemes to promote education and prevent child labour in several Latin American countries.

The authors are critical of the global thrust on Universal Basic Income (UBI) that monetary income can fix all problems. The authors consider it as a superficial quick fix that does not address the underlying causes for the persistent deprivation (P.180). They lament limited understanding of the social sector among policy makers.

Chapter 7 on ‘Deprivation and Distribution’ and **Chapter 8** on ‘Gender and Human Development’ examine multiple marginalities across intersectionalities and exclusions in developing countries. Flowcharts are used to illustrate

allocation of resources and livelihood strategies at the micro, meso and macro policy levels. Feminists have challenged the conventional indicators of development that focus on urbanisation, higher education, mobility of labour, technological development, modernisation, infra-structural development, industrialisation, mechanisation in agricultural, white revolution, green revolution, blue revolution, and so on. As a result, the development dialogue in the 1970s acquired a gendered lens as manifested in: (i) the critique of the trickledown theory; (ii) marginalisation as popularised by the UN as Women in Development; (iii) integration of women's approach known as Women and Development (WAD); (iv) Development Alternatives with Women (DAWN) at Nairobi Conference, 1985; (v) Gender and Development (GAD)- Women in Decision Making Process, 1990; (vi) adoption of CEDAW-Convention on all forms of Discrimination against Women; (vii) Human Development Index, Gender Empowerment Measure, 1995; (viii) Millennium Development Goals (MDGs), 2000; and (ix) gender mainstreaming in planning, policy making and programme implementation.

With the recognition of the subordinate status of women in economic, social, educational, political, and cultural spheres across nation states, two approaches for women development became popular. First, the instrumentalist approach influenced by human resource development, which supports investment in population to increase efficiency and productivity. Second, the human development approach that places emphasis on quality of life and wellbeing.

Chapter 9 on 'Sustainability: Securing the Present and the Future' discusses weak and strong attributes of sustainability, sustainability in HD, environmental sustainability with concrete examples from Columbia, Nepal, and Philippines. The authors conclude with a 'plea to arrive at an institutionally integrated view for a freedom-centered approach' that strengthens communities for collective freedom.

In this volume, the footnotes are as important as the main text. The Epilogue succinctly integrates all the concepts and approaches of human development and ends by asking sharp questions: Can global governance continue to be held captive in the hands of few powerful nations? Should the voices of the poor and disadvantages across all countries not find a rightful place in shaping polices for better world?

While Annexure A and Annexure B provide discussion and critical reflections on values and theoretical paradigms that shaped contemporary approaches to development, Annexure C traces women-centric explanations in various development approaches such as Women in Development, Women and Development and Gender and Development (WIDWAD- GAD). Appendix D analyses conversations around setting the global agenda for an equitable world and provides chronology of UN conferences since 1972 that shaped the concept of sustainable development.

This volume is a must-read not only for students of social sciences, but also for all thinkers and practitioners who are committed to social justice, gender justice and distributive justice.

❑ ❑ ❑

ROUND & ABOUT

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Climate Change Special

The most important event of the quarter (or for that matter of the year) concerning the climate and security of human life on the earth, was the Conference of Parties -27 which took place from 6th to 22 November 2022 in Sharm el-Sheikh, Egypt. The Conference of Parties (i.e. of member countries) is held every year under the auspices of the United Nations Framework Convention on Climate Change (UNFCCC).

CLIMATE CHANGE

Definition:

First of all, climate change is the consequence of global warming. Climate by its very nature always keeps changing, its parameters varying. It has been changing since the time the earth has climate. UNFCCC, in its Article 1, defines: climate change as: "a change of climate which is attributed directly or indirectly to **human activity** that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods".

(Reference: https://unfccc.int/files/essential_background/background_publications_htmlpdf /application/pdf/conveng.pdf)

As this is a special column, a few terms and definitions concerning climate change, the bodies working on it under the UN auspices, impacts of climate change, etc. are briefly introduced.

IPCC: The Intergovernmental Panel on Climate Change (IPCC) was established in 1988 to assess the state of existing knowledge about climate change; its science, the environmental economic and social impacts and possible response strategies. The UN General Assembly in the same year endorsed this initiative.

The IPCC is the apex scientific body in the world as regards the climate change science. Today what the world knows about climate change, its magnitude, its impacts, is through the Assessment Reports of the IPCC. [Reference: IPCC website (https://www.ipcc.ch/about/)]

UNFCCC: In 1992, countries came together in an international treaty called the United Nations Framework Convention on Climate Change (UNFCCC), **"to co-operatively consider what they could do to limit average global temperature increases and the resulting climate change, and to cope with whatever impacts were, by then, inevitable."** It came into force from 21st March, 1994. It has 194 parties. It is aimed at stabilizing greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interface with the climate system commonly believed to be around 2^0C above the pre-industrial global average temperature. (Reference: UNFCCC website- https://unfccc.int)

Conference of Parties: The meetings held under the auspices of the UNFCCC are called Conference of Parties (COP) which is held annually. (Reference: UNFCCC website-https://unfccc.int)

Global Warming: The United Nations Environment Programme (UNEP) defines global warming as "the recent and ongoing global average increase in temperature near the earth surface." According to the lPCC, "The global surface temperature is the area-weighted global average of (i) sea surface temperature over the oceans (i.e. the subsurface bulk temperature in the first few meters of the ocean), and (ii) the surface air temperature over land at 1.5 m above the ground."(Glossary of Terms, IPCC 3rd Assessment Report).

GREENHOUSE EFFECT

The greenhouse effect is the crux of the matter for causing atmospheric warming effect and consequently the climate change. If one has understood greenhouse effect, one has understood global warming. Just as a greenhouse is made to retain the heat, nature has provided the mechanism of the greenhouse effect to keep the atmosphere of the earth warm enough, so that a lot of processes and cycles go on, and life is sustained.

Greenhouse: A greenhouse (also called glass house) is a structure in which vegetables, flowers and plants are grown. It is a covered structure having roof and walls of glass. It allows for greater control over the inside environment, temperature, shade etc. The primary warming in a greenhouse is the mechanism of convection. In this way glass used for a greenhouse works as a barrier to air flow and its effect is to trap energy and keep it within the greenhouse. As this mechanism happens in the environment and heat is retained by certain gases- CO_2, Methane, Nitrous Oxide, etc. have been named **greenhouse gases**.

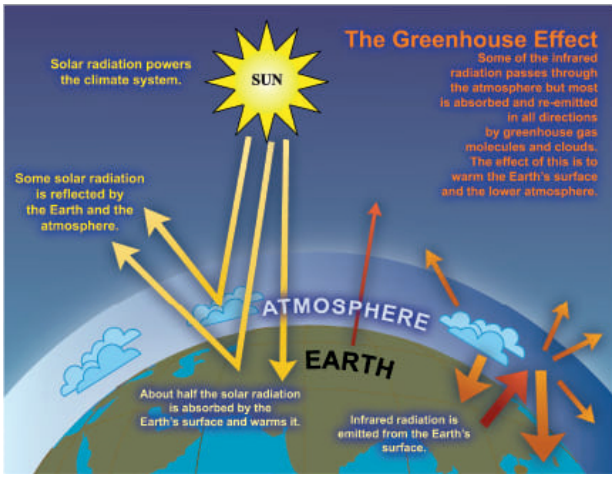
Greenhouse Effect

The greenhouse effect is a built-in mechanism designed by nature in the interest of the inhabitants of the earth. This is how it works -

The earth receives energy from the sun, mostly in the form of visible radiation.

1. Some solar radiation is reflected by the earth, the atmosphere and the clouds.
2. About half of the solar radiation is absorbed by the earth's surface.
3. Absorbed by land, oceans and vegetation at the surface, the visible light is transformed into heat.

Figure 1: An Idealized Model of the Natural Greenhouse Effect



Source: FAQ 1.3, Climate Change 2007 - The Physical Science Basis, Contribution of Working Group I to the Fourth Assessment Report of the IPCC.

4. When energy is absorbed by any substance, it raises its temperature (in this case, temperature of the atmosphere and the surface of the planet). Thus, surface temperature rises. In case of water on the surface, this raised temperature causes water to evaporate, which creates atmospheric water.

5. If an object is heated, i.e. when it has a temperature higher than its surroundings, then it loses energy to its surrounding by infrared radiation (this is a technical term for heat). From day to day life, we see that when a stove is put off, its burner is very hot. However, it begins to lose heat, and after sometimes it acquires the temperature of the room. The earth, as a result of receiving solar radiation and that solar radiation having been transformed into heat, the earth, compared to the outer space becomes very warm. So, it radiates (emits) energy in the infrared form, a rate that is proportional to the fourth power of the temperature (this is a scientific principle).
6. If this emission would have continued without any obstruction, then, like the example of the burner of the stove put off, the earth should become very cold in the night.

7. But here is the catch! There is big obstruction in the way of flow of this infrared radiation given off by the earth to the outer space. There are molecules of some gases, called greenhouse gases in the atmosphere, which have a propensity of absorbing this infrared energy. They absorb most of this out going infrared radiation, and keep on re-emitting it in all directions, including downward. This way, only some of the infrared radiation manages to escape to outer space. Thus, infrared radiation, i.e. heat is retained in the atmosphere; it keeps on circulation, as if within a blanket. This blanketing of heat, its absorption by greenhouse gases and re-emitting to its surrounding is the greenhouse effect. Because of this greenhouse effect, earth's average temperature is warm enough to be habitable and water goes on with its cycle. Had this not been so the earth would have had average temperature of about -18^{o}C. (Please see similar explanation of greenhouse effect, in quantifying terms of energy, in the chapter on global warming)

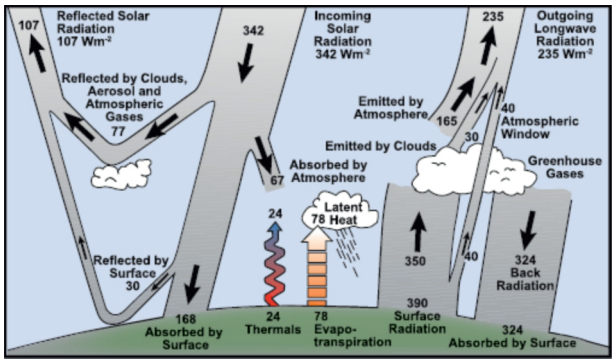
(Reference: This explanation is based on the IPCC, 4th Assessment Report, Climate change 2007 FAQ 1.3, WGI)

Further explanation of Greenhouse Effect

There are amazing natural phenomena operating on the earth, one of which is an in-built mechanism which keeps the earth warm; warm enough to be habitable and pleasant. Its explanations lay in two things- the energy balance of the earth and the property of certain trace gases, called greenhouse gases, which have a heat trapping property. They absorb and emit heat, called infrared radiation. The global energy balance is the balance between incoming energy from the sun and outgoing heat energy from the earth. However this is not a system of free flow as the outgoing heat is not allowed to go out fully to the outer space. It is held back in the atmosphere to serve a purpose that the nature has designed. Scientists have explained this process. One of the diagrams that are mostly relied upon is the global energy budget, shown as below.

It was prepared by Kiehl, J.T. and Trenberth, K.E. in 1997, which was published in the Bulletin of the American Meteorological Association. Using this diagram, the IPCC in its Fourth Assessment Report

Figure 2: Estimate of the Earth's Annual and Global Mean Energy Balance



Source: FAQ 1.1, Climate Change 2007 - The Physical Science Basis, Contribution of Working Group I to the Fourth Assessment Report of the IPCC, Kiehl and Trenberth (1997)

have explained the interplay of factors that determine the earth's climate. Inter alia, it shows that out of the sun's radiation energy of 1379 watts/sq.meter (w/m^2), one fourth of it i.e. 342 w/m^2 reaches the earth system. After its distribution to various components, reflection, and other use in other processes, about 235 w/m^2 goes out. While going out, most of it is absorbed by the greenhouses present in the atmosphere. The energy that was received was of various wavelengths, mostly shortwave and ultra-violet, which reached the earth unimpeded, whereas the outgoing is of infrared radiation (i.e. in heat form), for which the greenhouse present in the atmosphere have a propensity to absorb and re-emit. This absorption of outgoing infrared energy (heat) is the natural **greenhouse effect**. This blanketing effect keeps the earth warm and pleasant enough. Had this been not so the earth would have had a temperature around -18^{0}C.

Enhanced Greenhouse Effect: While the natural greenhouse effect is a boon to the inhabitants of the earth, this boon has become a bane. What is of concern is the **enhanced greenhouse effect** caused by increasing concentrations of greenhouse gases in the atmosphere, due to human activity on account of massive fossil fuel burning, deforestation, industrial processes, land use and biomass burning, etc. Simply put, the thicker the blanket of greenhouse gases, the more heat is retained by it and greenhouse effect is enhanced. According to the IPCC- "An increase in the concentration of greenhouse gases leads to an increased infrared opacity of the atmosphere, and therefore to an effective radiation into space from a higher altitude at a lower temperature. This causes a radiative forcing, an imbalance that can only be compensated for by an increase of the temperature of the surface-troposphere system. This is the **enhanced greenhouse effect**."

(Reference: Glossary of Terms-Annex B to the IPCC, Third Assessment Report [www.ipcc.ch/pdf/glossary/tar]).

In the context of the enhanced greenhouse effect, a few broad facts are mentioned here.

- Largest contributor to the natural greenhouse effect is water vapour. Its presence in the atmosphere is directly affected by human activity. Nevertheless, water vapour matters for climate change because of an important 'positive feedback'. Warmer air can hold more moisture, and models predict that a small global warming would lead to a rise on global water vapour levels, further adding to the enhanced greenhouse effect[a].

- Carbon dioxide is currently responsible for over 60% of the enhanced greenhouse effect. This gas occurs naturally in the atmosphere, but burning coal, oil, and natural gas is releasing the carbon stored in this fossil fuel at an unprecedented rate. Likewise, deforestation releases carbon stored in trees. Current annual emissions amount to over 23 billion metric tons of carbon dioxide[b].

- Methane from past emissions currently contributes 20% of the enhanced greenhouse effect. The rapid rise in methane started more recently than the rise in carbon dioxide, but methane's contribution has been catching up fast. However, methane has an effective atmospheric lifetime of only 12 years, whereas carbon dioxide survives much longer[c].

- Nitrous oxide, a number of industrial gases, and ozone contribute the remaining 20% of the enhanced greenhouse effect[d].

[References: (a) IPCC 4th Assessment Report of the Working Group I 2007. (Report published by Cambridge University Press). (b) UNFCCC Information Sheet (c) ibid (d) ibid]

NASA's latest updates released on 1 December, 2022

(NASA sends latest updates on climate change through email to millions of people who register with it for the purpose).

Carbon Dioxide Concentration

October's (2022) global average atmospheric carbon dioxide (CO_2) was about 419 parts per million. This is a roughly 50% increase since 1750 mainly due to human activities, such as burning fossil fuels and land-use change.

Update: Sea Level

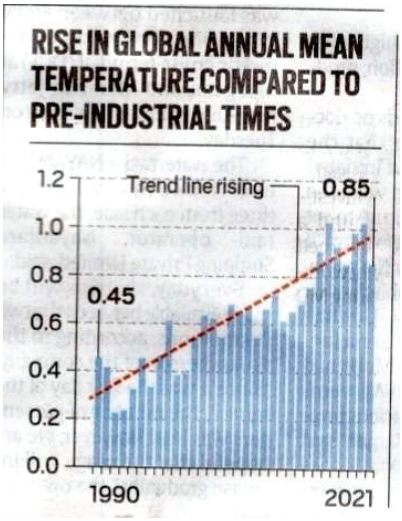
Global average sea level has risen about 103 mm (4 inches) since 1993 as a result of human-caused global warming. Recent rates have been unprecedented over the past 2,500-plus years.

The consequences of climate change now include, among others, intense droughts, heat waves, water scarcity, irregular pattern of rainfall including heavy downpour and unseasonal rainfall, flooding, rising sea levels, melting polar ice, catastrophic storms, increased occurrence and intensity of cyclones and hurricanes, declining biodiversity, adverse effect on health, etc. (These are explained in details UNFCCC information sheets pdf. What is mentioned here are the points taken from headings of the information sheets).

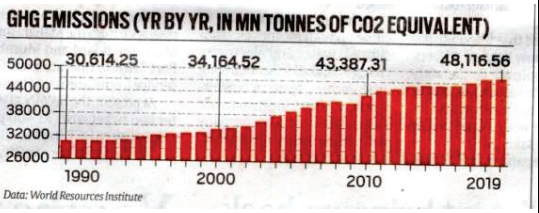
UN Climate Change News, 20 November 2022 – The United Nations Climate Change Conference COP27 closed today with a breakthrough agreement to provide "loss and damage" funding for vulnerable countries hit hard by climate disasters.
(References: (1) UNFCCC site-https://unfccc.int/cop27)

Note: *While the references to the scientific facts as mentioned above are mentioned below each item, all this information and much more is contained in the book Understanding Climate Change by AIILSG (2013 and 2015).*

Some Graphics



Source of the graphic: Indian Express
Mumbai, dt. 2/11/2022



Source of the graphic: Indian Express
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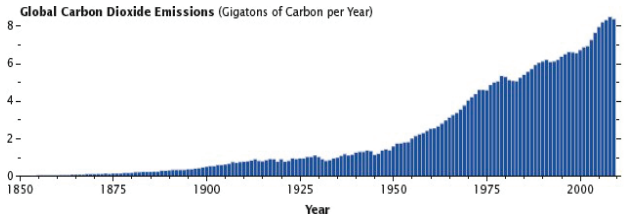
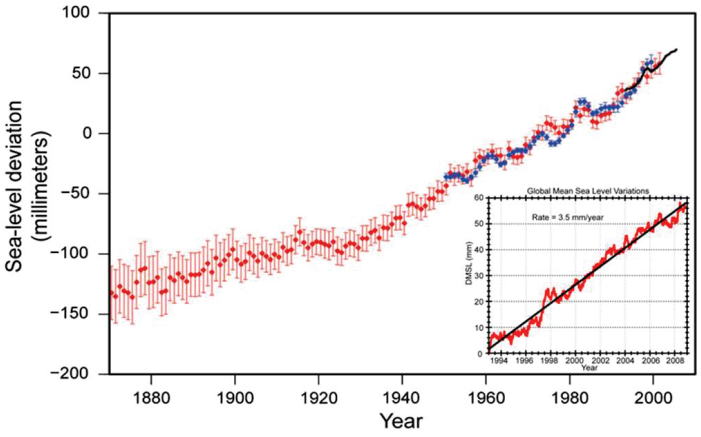


Global carbon dioxide Emissions (Gigatons per year
Source: NASA
(http://earthobservatory.nasa.gov/Features/CarbonCycle/page4.php)

Oil Consumption

At the beginning of the 20th century annual global oil output was 150 million barrels of oil. Now that amount is extracted In just two days.(www.global-greenhouse-warming.com/what is global warming)

Sea-level rise



Source: (Credit: www.ncdc.noaa.gov-ww.ncdc.noaa.gov%25252Findicators%25252F&source=iu&pf)

Balancing Nature

Nature keeps on balancing the environment of all the carbon put into the atmosphere. Oceans have diffused 30% of it through direct chemical action (CO2 dissolving). Plants on land have taken up approximately 25% of the carbon that humans have put into the atmosphere. NASA (earth observatory.gov/features/carbon cycle)

India's Urban Infrastructure Needs to Cross $840 Billion Over Next 15 Years: New World Bank Report

In the literature on urbanization, which comes out frequently through seminars, books, articles, reports and talks, one finds a number of estimations about increase in urban population over next 10, 20 or 50 years. Similarly, there is a common theme mentioned that India needs to spend more on infrastructure development in cities and that the ULBs have constraints to spend more on this item because of limitation of resources. The Annual Reports of the Ministry of Urban Affairs, Government of India shows that the Goverrnment is seized up of the concern and paying attention to the problem through various programmes, national missions and other strategies. The latest report of the World Bank is a recent addition to the reports on the needs of spending more on infrastructure in cities. A few extracts from the Report are as under:

NEW DELHI, November 14, 2022 – A new World Bank report estimates that India will need to invest $840 billion over the next 15 years—or an average of $55 billion per annum—into urban infrastructure if it is to effectively meet the needs of its fast-growing urban population. The report, titled "Financing India's Urban Infrastructure Needs: Constraints to Commercial Financing and Prospects for Policy Action" underlines the urgent need to leverage more private and commercial investments to meet emerging financial gaps.

By 2036, 600 million people will be living in urban cities in India, representing 40 percent of the population. This is likely to put additional pressure on the already stretched urban infrastructure and services of Indian cities – with more demand for clean drinking water, reliable power supply, efficient and safe road transport amongst others. Currently, the central and state governments finance over 75 percent of city infrastructure, while urban local bodies (ULB) finance 15 percent through their own surplus revenues.

Only 5 percent of the infrastructure needs of Indian cities are currently being financed through private sources. With government's current (2018) annual urban infrastructure investments topping at $16 billion, much of the gap will require private financing.

"Cities in India need large amounts of financing to promote green, smart, inclusive, and sustainable urbanization. Creating a conducive environment for ULBs, especially large and creditworthy ones, to borrow more from private sources will therefore be critical to ensuring that cities are able to improve living standards of their growing populations in a sustainable manner," **said Auguste Tano Kouamé, Country Director, World Bank, India.**

The new report recommends expanding the capacities of city agencies to deliver infrastructure projects at scale. Currently, the 10 largest ULBs were able to spend only two-thirds of their total capital budget over three recent fiscal years. A weak regulatory environment and weak revenue collection also adds to the challenge of cities accessing more private financing. Between 2011 and 2018, urban property tax stood at 0.15 percent of GDP compared to an average of 0.3-0.6 percent of GDP for low- and middle-income countries. Low service charges for municipal services also undermine their financial viability and attractiveness to private investment.

Over the medium term, the report suggests a series of structural reforms including those in the taxation policy and fiscal transfer system - which can allow cities to leverage more private financing. In the short term, it identifies a set of large high-potential cities that have the ability to raise higher volumes of private financing.

PRESS RELEASE NOVEMBER 14, 2022 [https://www.worldbank.org/en/news/press-release/2022/11/14/india-s-urban-infrastructure-needs-to-cross-840-billion-over-next-15-years-new-world-bank report#:~:text=NEW%20DELHI%2C%20November%2014%2C%202022,its%20fast%2Dgrowing%20urban%20population].

Green Cities Award 2022 to Hyderabad

We have all seen the big advertorials of the Government of Telangana and newspaper reports about the city having been awarded the prestigious Green Cities 2022 award and 'Living Green for Economic Recovery and Inclusive Growth' award at the International Association of Horticulture Producers (AIPH) World Green City Awards 2022 held in Jeju, South Korea. (Widely reported in newspapers on 16 October, 2022). Making cities green, taking up more and plantation of trees and greenery are the avowed goals of all the city governments. When one goes into what worked for Hyderabad, one finds that this the achievement of right planning, its commitment to the goal and sustained efforts over the years and also having people's participation in the efforts. The details are as under:

Telangana Ku Haritha Haram (TKHH), meaning 'Green necklace to the State of Telangana' is a flagship program which is a large-scale tree-planting program implemented by the Government of Telangana since 2015-16. The program envisages increasing the tree cover of the State from present 24% to 33% of the total geographical area of the State. In Hyderabad city massive plantations were taken up under various components like Avenue Plantation, Multi-layered Avenue plantations, Miyawaki plantations, Barren Hill Afforestation, Institutional plantations, Homestead plantations, Tank foreshore, Canal Bank, Riverbank and Rivulets, industrial parks. Creation of Smrithi vanams, Greenery under flyovers, vertical gardens, Planting in Urban Residential Colonies involving all stakeholders.

These included:

- Roadside Multi Layered Avenue plantations – length 881.5 Km, 37,27,805 Nos.
- Greenery on Road Central Median – length 406.50 Km, 47,03,241 Nos.
- Tank bund plantation No. of. Lakes – 24, No. of. Plants 32,00,000.
- Urban Parks 1087 Nos.
- Urban Forest area Block Plantations 5928.38 Ha, No. of. Plants 30,00,000.

- Colony/Street Plantations – 56,25,857 Nos.
- Institutional Plantations – No. of. Plants 155,00,000.
- Vertical Garden – 12 Nos.
- Block Plantations – 250 Ha along ORR
- Landscape Gardens – 12.5 Ha.
- Rain Garden – 7 Nos & No. of plants 7,00,000.

Due to intensive plantations raised in Hyderabad city over last (6) years, the environment improved a lot. Annual cumulative rainfall (mm) from 01/06/2021 to 11/03/2022 Actual – 6958.7; Normal – 5255.6; Deviation (%) – 232 of Hyderabad City limits (HMDA area) is far higher than that of the State Cumulative Rainfall (mm) Actual – 1138.5; Normal – 861.2; Deviation (%) – 32. Improvements are seen in ground water level and abatement of Air, Noise pollution.

The resident associations of the city have raised plantations at their homesteads and colonies adopting 760 colony parks and their maintenance. Remarkable increase in the green cover noticed as per FSI report by 48.66 Sq. kms. i.e., from 33.15 Sq. kms in 2011 to 81.81 Sq. kms in 2021. Importantly, the aim is to inculcate the right attitude towards trees and green environment in the younger generation.

[Reference: (1) The Times of India, 16 October, 2022 (2) https://aiph.org/green-city/guidelines/case-studies/hyderabad-india/]

Call for Research Papers!

The **Regional Centre for Urban & Environmental Studies** is pleased to invite contributions for **Urban World** in the form of articles and research papers from researchers, authors, publishers, academicians, administrative and executive officers, readers on : **Urban Governance, Planning and Development.**

Articles could be between 2000 to 4000 words. They may contain compatible tables, charts, graphs, etc. We reserve the right to edit for sense, style and space. Contributions may be e-mailed in digital form as a Word file to the Director, RCUES, Mumbai.

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