

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 Ministry of Urban Development, 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 Ministry of Housing and Urban Poverty Alleviation, Government of India.

The AIILSG, Mumbai houses the Solid Waste Management (SWM) Cell backed by the Government of Maharashtra for capacity building of municipal bodies and provide technical advisory services to ULBs in the State. The Water Supply & Sanitation Department (WSSD), Government of Maharashtra (GoM) established Change Management Unit (CMU) in AIILSG, Mumbai from 13th January, 2010 to 30th June, 2014 and also selected AIILSG, Mumbai as a Nodal Agency in preparation of City Sanitation Plans for 19 Municipal Corporations and 15 A Class Municipal Councils in Maharashtra State, under the assistance of Ministry of Urban Development, Government of India. The WSSD, GoM also established Waste Management & Research Centre in AIILSG, Mumbai, supported by Government of Maharashtra and MMRDA.

In August, 2013 Ministry of Urban Development, Government of India empanelled the AIILSG, Mumbai as Agency for providing technical support to the Cities / Towns of States / Urban Local Bodies (ULBs) in the field of Water Supply and Sanitation, Sewerage and Drainage systems.

In July 2015, Ministry of Urban Development, Government of India empanelled the RCUES & AIILSG, Mumbai an Agency for technical support in Municipal Solid Waste Management under Swachh Bharat Mission (SBM) programmes.

In February, 2016, Ministry of Housing and Urban Poverty Alleviation, Government of India empanelled 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 State and Urban Local Bodies (ULB) level under Deendayal Antyodaya Yojana – National Urban Livelihoods Mission (DAY – NULM).

In December, 2017, AIILSG has been empanelled as a training entity regarding implementation of new Integrated Capacity Building Programmes (ICBP) under Urban Missions, viz. Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Swachh Bharat Mission (SBM), Smart Cities Mission (SCM), National Urban Livelihoods Mission (NULM), Housing for All (HFA), Pradhan Mantri Awas Yojana (PMAY) and Heritage City Development and Augmentation Yojana (HRIDAY) for Elected Representatives and Municipal Functionaries.

At present, RCUES and AIILSG, Mumbai is involved in providing capacity building, research and technical support to number of State Governments and ULBs for implementing various urban development missions and programmes launched by the GoI.

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Editorial

In the post 3rd wave of coronavirus pandemic of Omicron variety, the urban India is gearing up to intensified economic activities and improved public health unfractured. The Union budget 2022-23 has followed supply side economics to promote state sponsored capitalist development and subsidize the private sector by increase in capital expenditure by 35.4%, from Rs 5.54 lakh crore to Rs 7.50 lakh crore and effective capex seen at Rs 10.7 lakh crore for the financial year. The budget has increased revenue expenditure by only of 1%, thus the social sector in the current budget is the major casualty.

The Emergency Credit Line Guarantee Scheme (ECLGS) for the medium and small scale industries has been expanded by Rs 50,000 to Rs 5 lakh crore. Top focus of the Union budget this year are: PM Gati Shakti, Infrastructural Development, Productivity Enhancement measures through automation and block chain technologies, sunrise opportunities in artificial intelligence and robotics, energy transition to reduce carbon footprints by introduction of electricity run vehicles , climate action, financing of investments with potential for increasing growth of Gross Domestic Product (GDP). The productivity-linked incentive schemes in 14 sectors have received investment intentions worth Rs 30 lakh crore.

Urban housing for the migrant workers, who are the backbone of economy, improved quality of Integrated Child Development Programme and Mid-Day Meals for the malnourished population and bringing back over 3 crore children who have lost 2 years of education due to lack of digital connective are uphill task faced by the urban India. Hence, accelerated developmental efforts will have to be made by the urban local self-government bodies to compensate for the loss of last 24 months due to health emergency. The smart city agenda will have to focus on education, public health, urban employment, food and nutrition security, safety of women, children, elderly and persons with disability.

This context setting of macroeconomic considerations and critical reflection on the Union Budget (2022-2023) is very important to understand the implications of the Union Budget 2022-23 for the urban India that has faced 2 years of onslaught of the pandemic triggered socio-economic, health, employment and educational challenges.

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.

Struggling at the Margins: Women Vendors on India's Streets

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Abstract

Off late, the states are unable to rise above its dictatorial tendency of subjugating both by power and persuasion, as a result the public spaces suffer contestation in which the state claims supremacy and the common tries to acquire the public space by playing hide and seek with the state, as a survival strategy. Further, when the commons claim access and control of public space it does not accommodate the interest of the diversity in the composition of the commons, however the voice of the majority is sanctioned as the common voice.

The saga of informal economy, of which the livelihood of women street vendors forms a part, is subject to multiple vagaries emerges from the context which differs from country to country based on history, economic and political environment, nature of state intervention, internal and external market dynamics, etc. Though in a broader, all-encompassing sense it includes all economic units and workers who are not a part of a protected employment relation (Chen 2004:1). The distinction of informal from formal has now gone much beyond the notions of permanency and has entered the realm of multi-dimensional precariousness and marginalization, "flanked by an army of unemployed and a detached group of socially ill misfits" (Standing), who enjoy almost none of the benefits won by organized workforce during the 20th century.

Interestingly, this 'labour' is not a reflection of traditional Marxist 'working class' tied with workplace, production and profit. They are a fleet of scattered groups of people who 'reside and produce (or offer service)' under the same roof as a part of an unknown 'chain of production' processes in cities created by man as its new world. They are herded under the term 'urban informal' and forced to struggle at the margin of our everyday life. Moreover, as always informal is populated with women, who (read women labour) are doubly marginalized.

This paper attempts to argue that the journey of this toiling army of citizenry (read the other i.e. women street vendors) at the margin to create its own space on India's streets should be looked at through the lens of social, historical and cultural processes rather than as a sector that emerges as a result of crisis. The author has tried to draw upon Giorgi Agamben's work where he tries to describe the stripping off an individual of their political rights thus making 'it' bare bodies, especially due to the denial of access to public spaces and the vulnerability in these spaces.

Key words

Bare bodies, space, informality, margin, urban informal sector; women street vendors.

Informality and Street Vending in India -- locating a rough terrain

The definition of a street vendor as included in the National Policy on Urban Street Vendors goes as: "A street vendor is a person who offers goods or services for sale to the public without having a permanently built structure but with a temporary static structure or mobile stall (or head-load)."

Bhowmik(2001) pointed out the major Indian cities, like Mumbai, Ahmedabad, Kolkata, Bengaluru, Patna and Bhubaneswar, street vending is mainly a male dominated profession (around 60% to 85%). Whereas in Imphal, at the capital of Manipur, it is mainly women's activity as 93% of street vendors are women. The daily average income of men is around Rs. 70 in almost all major cities, whereas in Patna it is Rs. 50. Women earn considerably less, at anything between Rs. 40-50 but in Patna, it is Rs.30. Male vendors are found to be selling all kinds of items, and majority are involved in selling products such as garments, household utensils, electronics and leather items. Interestingly, women are found not to be engaged in selling electronic items or leather goods. This is because the selling of these products requires substantial investment which is a risk taking venture which is only availed by men. Women are more comfortable with those items which require small but day-to-day investment such as vegetables, cooked food and fruits etc.

The Asian economic crisis had led to many job losses and these people were later found to take up street vending (Nirathron, 2006). Increase participation of women vendors in street vending has to be conferred within the dominant system of gender roles. Street vending attracts the disadvantaged segments of the society who have limited skills and capital; particularly women, because they have low education and skills. Debdulal's (2012) study shows that the main factors that influence women vendors participation are

poverty specially to support their family, widowhood, low level of education, childcare, and child education. Often widowed women take up this occupation due to poverty. The number of widowed females are higher than that of widowed males. The number of aged vendors in the profession is seen, and despite their old age they are found to work hard for long hours to eke out a living.

Women are seen working as wage workers in street vending –

Debdulal (2012) also brought out that 90% of women vendors depend on moneylenders and wholesalers, compared to less than 80% in the case of men to access credit to run their business. It is seen that they have less capital to start as well as continue the operation of their business, therefore, they are pushed to borrow money. Not surprisingly, moneylenders and wholesalers prefer to lend to female vendors rather than their male counterparts. This is because the rate of recovery of the loan is higher in the case of female vendors than with male vendors. Data reveals that moneylenders provide loans to female vendors at low rates for the first loan or the first installment of the loan to attract them. Thereafter, moneylenders charge higher with each subsequent loan or installment of the loan. In this way, female vendors fall into a "multi-dimensional trap".

Moreover Carr et al (1996) observed that organizations that provide a common platform for men and women have not been very successful. This is because the issues of women are very different from those of men. In a gender conservative society like India, women's participation in work outside the home is not given due recognition. A common platform would thus debar women from active participation and make them passive listeners, and thus their empowerment would not be achieved. More number of women depend on moneylenders than

men. However, women are much more prone to exploitation than men, and their vulnerability to threats of evictions is much greater than that of men since they are seen as fragile.

Urban Space, Informality and Women Street Vendors

Turning a leaf from the historical account, about the debate of informal sector post Hart's analysis of modern Ghanaian economy, we learnt that, many of the economic activities termed previously by the economists as traditional and hence marginal and unproductive are actually the ingredients of dynamic and productive role of informal economic activities in development economies. His empirical data had shown that the migrants in Accra were employed in a range of diverse informal economic activities that were actually important and often proved as critical to the supply of the city's essential services. Hence, a city, a creation of man's new world created the requirement of such an array of services and work that attract fleets of workers to engage day in and day out to keep the city going and therefore, they become an essential part of the 'urban space' that the city boasts of.

We find the echo of above in Indian context where the non-recognition by the state and institutional form of disrespect is widespread and commonplace for women citizenry who occupy the 'space' of modern cities of India to earn their livelihood. Although brouhaha created by neo-liberalistic expressions where people heroically stand up against the tyranny of excessive state regulations, and usher the free market economy into their fore, the neoliberal arrangement actually snatch away the canopy of safety out of the heads of poor. The 'space' that was being used traditionally before this arrangement suddenly became the 'space' for contestation among the poor as everyone makes a beeline to occupy that space.

Harvey (2013) mentioned that “The rich these days have the habit, for example, of sealing themselves off in gated communities within which an exclusionary commons become defined”. Now, in case of women vendors who ferry the goods in different such type of gated communities around the cities are subjected to obtain the permission from the competent authorities (*read the respective housing societies office bearers*) to enable to sell their products. Therefore, instead of state, a representative body of citizens, it became numerous number of bodies formed by 'the other' set of citizenry at the position to be considered as decision making authority. And this is being done arbitrarily without considering the viewpoint of women vendors. Therefore, access to urban 'space' by the women street vendors as informal labour is a matter of contestation among various stakeholders. Here, the women vendors are always treated as 'the other' (introduced by Edmund Husserl, 1931) trying to trespass the *sanctum sanctorum* of another set of citizenries!

Secondly, the employment relations and working conditions that exist within the premise of informality put the downward pressure on the 'labour' to keep them at the bottom line of city premises. Women street vendors lack access to drinking water and public toilet which result into significant health threats working on the streets. Although they are the mainstay for the 'city' lives, they don't have any access to its infrastructures to carry out their day-to-day lives.

State of Exception

The State believes that the domination of the public spaces is its sole right and the conduct of the state differs based on the social class a group belongs to, thus characterizing spaces with marginality, social inequality, segmentation and ethnic division. On the one hand, upper and middle classes frequently encroach public spaces by parking cars or developing residential complexes; on the other

hand, the urban working poor suffers the fear of eviction every day. The raids carried on by civic authority rampage the livelihood of street vendors. They are treated worse than criminals, while confiscating the wares of the street vendors, the civic authorities do not provide a list of goods confiscated, which is a seizure list in case police raids at a criminal suspect's residence (Bhowmik 2010). Thus, treating them worse than criminals. These street vendors undergo a trauma while the municipal eviction vans pass them. The State recreates and enforces its hegemonic control over the body of these women street vendors by fear of sovereign power.

Schmitt (1996), defines sovereign as “he who decides on the state of exception” by means of which Schmitt ties the state of exception to dictatorship. Extending this theorization forward Giorgio Agamben, in his text on “State of Exception” describes “Modern totalitarianism can be defined as the establishment, by means of the state of exception, of a legal civil war that allows for the physical elimination not only of political adversaries but of entire categories of citizens who for some reason cannot be integrated into the political system”. The state of exception or the state of siege as Agamben describes in his writings throws light on the indeterminacy between democracy and absolutism.

Street Vendors often mention about the fear that fills them seeing the municipal truck. They are blamed for misfortune on the street. The pedestrians complain that street vendors block footpaths. The police and municipal targets them as criminals. The elite argument revolves around the discourse that hawkers are one of the city's primary nuisances because they inappropriately use streets and footpaths, block traffic, depress real estate values and are, more generally bad for a livable city. Whereas in reality area with the presence of street vendors is safer and the real estate value increases because of the availability of everyday goods 'at your doorsteps'.

In common parlance, the state of exception of the emergency state is a situation marred by conditions in which the life of the nation is threatened and is not a characteristic of everyday conduct. As a result, these eviction drives and public space clearance form a part of the constitutional dictatorship when crisis is at hand else it clearly becomes unconstitutional dictatorship. Agamben understands the state of exception to be “essentially extra juridical” something prior to other than the law, thus suspending the Constitution itself. Yet the State imposes an imperative to colonize the “life itself”. It is this situation on a non-warring state that grants power to the executive to be self-commanding. Does this mean that the existence of a separate legislative and executive wing of our Constitution a mere chimera?

Concrete political programs of resistance can perhaps be charted when it is recognized that the deployment of violence is legitimized by constituting some subjects as being responsible for public disorder who are 'dangerous, likely to cause pain or unpleasant outcomes, and threaten the safety of vulnerable individuals' (Grandy and Mavin, 2012: 775). By contesting these discourses of public disorder, the enactment of sovereign violence can be challenged; and the argument of 'rights intrinsic to humanity as biological life ... being actualized within the confines of the nation-state' (Lechte and Newman, 2012: 523), and therefore, the politics of rights being subordinate to sovereignty, can be problematized.

Gendered – 'Doubly Bare Life'

Agamben in his famous text *Homo Sacer*, draws distinction between biological existence (*zoe*) and the political life of speech and action (*bios*), deriving from Aristotle's theorizations. The conceptualization of *Homo Sacer*/bare life is derived from ancient Roman law – that is, the notion of banned man who can be killed with impunity by all but is unworthy of either juridical

punishment or religious sacrifice. In this piece, we attempt to draw on Agamben's theorization and analyze how the state and social system renders "bareness" to the life of a street vendor more so for women street vendors.

The central paradox bare life presents for political analysis is the erasure of political distinction. The state of exception renders bare life and revolves around the contemporary ideas of biopolitics. Stripped from political significance and exposed to murderous violence (sic: symbolic term with reference to loss of livelihood and hence deprivation), bare life is the target of sovereign violence. Where the human is reduced to a mere beast, whose existence is equivalent to non-existence in the political arena.

This sovereign violence extended to street vendors damages their life with long lasting impacts. The citizens and the State never acknowledges that it "parasitically depends" on street vendors, thus it keeps creating a constant fear of bribes, police led extortions and evacuations to reinforce a falls belief that the street vendors are irrelevant and a burden to public spaces.

The authors believe that the women street vendors are "doubly bare lives". They face all kinds of humiliation from state authorities in the form of police tortures along with sexual harassment sitting 'bare' in the streets. We would substantiate our argument by narrating incidences from accounts collected in 'Street Vendors in the Global Urban Economy' by Sharit Bhowmik. The atrocities suffered by women street vendors is multi-layered.

Bhowmik (2011) opined, a street vending woman lives with multiple identities and a majority of these identities are oppressed and marginalized. The multi-layered violence creates a plethora of barriers for her trading. The urban planning is relatively even lesser sensitive to the needs of women street vendors. The areas were women street vendors ply

their trade, lack toilets and basic infrastructure. These inconveniences are absent in case of men street vendors. Women street vendors are not much tolerated by their male counterparts as well. They are only allowed to "exist" near male vendors if they make lesser profits (Bhowmik, 2011).

Street vending requires immense physical labour. A vendor starts early in the morning with the day's purchase, traveling to the marketplace to sell their ware, arranging, cleaning, sorting, weighing and dealing with customers. They are exposed to the pollution, scorching sun and rain all day long. Women street vendors are doubly troubled; they have to complete the housework before they set out for 'business'. These women street vendors display extraordinary business and communication skills without any formal training, yet they are termed as unskilled. Is it because their skill set does not come from a formal business school training?

National Masculine Imagination

The national identity development is monolithic and less gender neutral, as a consequence of which the interest group in majority is reflected in policy development, neglecting the needs of the minority. In case of women street vendors "masculine prowess is expressed and strategically exercises" (Tamar Mayer, sic: relate to women street vendors). They are never allowed to trade at attractive spots in the market place where the chances of their visibility are higher. Why are women street vendors unable to experience a sense of belongingness towards the nation, it is because of "national masculine imagination." Gender, nationalism, and sexuality are socially and culturally constructed, therefore they play an important role in constructing one another – by invoking and helping to construct the 'us' versus 'them' distinction and exclusion of the other. The empowerment of one gender usually occurs at the expense of another. As a result the public spaces like other feminized entities remain the property of men.

Woman street vendors are poorer, since women take to street vending majorly if their husbands or the male members in the house is unable to provide for the house, therefore their economic condition is relatively worse than male vendors. In Dhaka Village, north Delhi women vendors in weekly markets admitted that they faced greater harassment because they were viewed as more vulnerable. If their husbands came along the police harassed them less (Bhowmik, 2011). There were instances in which women street vendors admitted that there were vendor associations but they were not allowed to be a part of it. Not only this, studies show that customers prefer going to the women vendors because they are of the opinion that women are docile and they will be able to squeeze more bargain. Thus, the society tends to use and reuse the women as per their convenience and once the purpose is over the women body reenters the curse of oblivions.

Conclusion – Moving Margins to the Center

The Indian political system is romanticizing the idea of self-employment “businesses” like street vending in order to be saved from the responsibility of providing requisite social protection and decent working standards. One of the reasons of this ludicracy could be for the state to legitimize its power and concentrate more on strengthening its

sovereignty by a totalitarian state towards the marginalized, thus disciplining the body of the individuals who are rarely entitled to any rights.

India has a burgeoning working-age population with expressions from some analysts estimated that by 2020 India may well have a potential labour force of 716 million people (TeamLease 2006). However, the failure of economy to deliver the decent employment opportunities meant that hundreds of millions of workers take refuge of informal employment situations which do not deliver employment protection, social security and adequate living wages. They remain struggling at the margin in urban informal set up. The struggle to appropriate the public spaces and public goods in the city for a common purpose is ongoing (Harvey, 2013). Thus, day-to-day lives, activities and struggles, individuals and competing social groups are forming the social livable world in the city and therefore, create a common framework within which all dwell.

Going by Ostroms' common pool resources argument, it would be apt to bring in the marginalise to the center, respect the oscillation of 'doubly bare lives' along with their cultural, social and historical standing in the sphere of the city where the question of 'the other' can be dealt with more inclusivity, prudence and humane approach!

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Engagement with NULM SHGs to address COVID-19 Pandemic

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During the COVID-19 pandemic, the Dalai Lama spoke of stark reality – how interdependent we are! What happens to one person has the potential of affecting many others.¹ This principle of 'interdependence' can be observed even in real-time development programmes with sectors and programmes collaborating, synergizing, and facilitating with each other for a common cause i.e. – peoples' welfare. The COVID-19 pandemic is one such incident that made us realize the need for an integrated approach based on multisectoral interventions to save people. It gave government, development agencies and communities an opportunity to come together to fight and redress existing challenges to overcome physical, mental, and social crises. One such joint initiative was undertaken by Deendayal Antyodaya Yojana - National Urban Livelihood Mission (DAY-NULM) and UNICEF together to address COVID appropriate behaviours amongst the selected Municipal Council population of the State while simultaneously ensuring livelihood for DAY-NULM Self Help Groups (SHGs) through this project.

The state of Maharashtra was one of the worst affected in the country with COVID-19 pandemic. In the first wave of the pandemic, Maharashtra was one of the first state in the country to cross the number of 100 cases as spread in urban areas increased² and in the 2nd wave of pandemic, considered as 3 times more intense than the first,

the state witnessed a higher number of Mucor mycosis cases caused due to COVID complications. Unlike the first wave, the infection in the second wave was not limited to the urban areas but had spread in rural and remote areas of the State. The emergence of the pandemic in the country led to a country-wide lockdown in March 2020. Gradually as some parts of the country, excluding containment zones, entered the unlock phase in June 2020, Maharashtra continued the State-wide lockdown up to August 2020 as COVID cases continued to rise but permitted several non-essential markets and e-Commerce with restrictions.³ The emergency decision in both the waves to have a lockdown affected different sections of the population differently. For the affected population, it meant the loss of jobs and wages, increased psychosocial issues, school closures, increased domestic violence, food insecurity, and slow economic growth. As per International Labour Organization reports, people working in the informal sector such as casual and daily wage earners were the most affected by the pandemic. It is estimated more than 400 million workers from the unorganized sector in India experienced severe poverty during the pandemic.⁴ The COVID-19 pandemic socially and financially disrupted the lives of many urban poor. There fore it was very important to have large-scale interventions that not only created awareness of COVID appropriate behaviours by community participation but also could give livelihood

opportunities to the community representatives. One such scheme of Govt of India - Deendayal Antyodaya Yojana - National Urban Livelihoods Mission” (DAY-NULM) recognizes the link between employment and poverty reduction. DAY-NULM aims to motivate the urban poor for forming institutions and provide hand-holding support through skill development and mediating partnerships with industries especially to the disadvantaged and vulnerable groups, minorities, women, and disabled. DAY-NULM envisages mobilizing at least one member of urban poor households preferably a woman to be a member of SHG which shall have the provisions of bank linkage, financial support services and a revolving fund of Rs. 10,000/- to sustain their livelihoods. The Self-Help Group Bank Linkage programme is considered as a landmark and largest micro-finance model in the world with 90% of SHG members being women.⁵

With significant COVID cases in the urban areas, it was essential to address community transmission through Risk Communication Community Engagement (RCCE) intervention to advocate the key messages i.e. the use of masks, physical distance, and regular hand hygiene. COVID-19 infection is caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) primarily transmitted by droplet, contact, and airborne routes.⁶ It is found that a minor fraction of exhaled air containing the virus can result in the airborne transmission of COVID.⁷ As established scientifically, the World Health Organization has advised use of a mask is essential for the prevention of COVID-19 infection as well as to control the spread. Two types of masks – Medical and non-Medical are available. Medical masks are recommended in a healthcare setting where healthcare workers provide care to suspected or confirmed COVID-19 patients, and non-medical masks in a community setting. The non-medical mask should contain a three-layer structure having

an inner layer of a hydrophilic material, a middle layer of a hydrophobic layer that enhances filtration, and an outermost layer made of hydrophobic material. However, studies conducted in different states reveal there are several reasons for non-compliance with mask use. Two key reasons identified were low awareness levels and low-risk perception by people besides, other reasons like discomfort, irregular use and minimum or no information on respiratory etiquette.⁸ With this in view, DAY-NULM and UNICEF launched a Mask campaign in all 15 B Class Municipal Councils representing every division of state (population ranging between 75000 – 100000) to strategize a twin fold approach one, a CAB communication strategy and two, to generate income to support SHG members and their households during the pandemic lean times. As per the Evidence Consortium on Women's Group, the impact of lockdown reduced the market opportunities for the SHGs leading to group dissolution but SHGs hold the confidence of the local people and communities.⁹ Therefore, to create awareness regarding COVID Appropriate Behaviour and to create an enabling environment for peoples participation to support safe use of right mask at all critical times, a three-pronged Programme approach was adopted, one, Capacity building of SHG members, two, Risk communication and Community engagement through mask campaign IEC and three, Developing a business model by empowering SHG members. The urban areas selected for the project, though small in size and population, are a significant marketplace in their respective blocks and they experience large-scale migration of communities from neighbouring villages for the economic opportunities they offer. Hence to create an opportunity to grow against the backdrop of the pandemic, cities with a maximum number of SHGs were selected which included Ratnagiri, Chalisgaon, Shirpur, Amalner, Manmad, Shrirampur, Pandharpur, Hingoli, Parli, Khamgaon, Akot, Washim, Kampthee, Bhandara, Ballarpur.

The project began in February 2021 with training and orientation of DAY-NULM functionaries which included Area Level Functionaries, City Level Functionaries and Self-Help Group members. Training on information on COVID-19 pandemic, COVID appropriate behaviour, Importance of masks, types and stitching techniques was taken by 67 Master Trainers for which 1371 SHG members participated. The members were trained to make the mask as per the World Health Organization guidelines, ensuring masks did not cause any breathing problems, enabled protection, were in the right size and stitched as a Triple-layered mask. The work for cutting and sewing was divided among the SHG members. Bulk procurement of cloth was a critical constraint as many vendors did not possess enough stock due to the quasi-lockdown and the mobility restrictions. Along with Mask making, SHG members also played a role in creating awareness for COVID-19 prevention strategies through miking and house to house messages. Different channels of communication were used by urban local bodies like distributing pamphlets at public places in Manmad, audio messages for COVID appropriate behaviour played on Ghantagadi (garbage truck), participatory strategies such as rangoli and essay writing competition, street plays in Akot and Ratnagiri.

The process of mask production witnessed unique strategies adopted by the municipal bodies and the benefits of empowering the SHG women. In Ballarpur, the motivated women completed the target of sewing masks but continued working together for stitching kitchen aprons and dining cloth and sold them along with the masks. Even though few women in Shrirampur did not have sewing machine, they continued to be the part of mask production exercise as the SHG divided the work among them and those females did the work of cutting the cloth and others did sewing and finishing. In Pandharpur, the team negotiated with cloth supplier to cut the cloth and then supply so that the SHG women only concentrate on stitching and

making the final product. Amalner team banked upon the cloth market from Surat which enabled them to buy the raw material at a lower cost price. These modalities in mask production process enabled the women to profit from this opportunity. Every SHG woman was paid for her work. Further, the revenue generated through selling the masks enabled the City Level federations to assist the SHGs build a new livelihood initiative. An amount of 36 lakhs was invested among the 15 ULBs and 2,81,285 units of masks were produced across the state. Based upon the trend of mask sales, a profit of more than a Lakh rupees was estimated. The entire activity brought many qualitative changes as well as economic relief, especially to the SHGs and livelihood mission. Most of the participating women belonging from the economically vulnerable category were at a risk of losing their livelihood due to the pandemic. The falling of livelihood and drop in income created a challenging situation for their families. The successful process of mask production and sale put a sense of financial freedom among these women. Not only could they run their families but also the profit enabled the women to invest in a new livelihood becoming an example of change in the community. The mission managers also realized their was a rise in the social status of participating women and to enhance their stability, the mission managers mediated availing bank loans for SHGs to start new business. Another positive extension of the project was the development of collective participation and team work among women for initiating new livelihood together. For example, the group of women from Pandharpur continued working together to produce and sell spices, the team from Shrirampur approached municipal councils to get training on stitching of sanitary napkins whereas in Shirpur women began stitching and sale of sanitary napkins. Thus the women grew confident of starting their businesses and imbibed marketing strategies. The efforts taken by the SHGs were generously appreciated by electronic media and newspaper bringing them more opportunities.

The pandemic and the associated lockdown highlighted the importance of local businesses and how it affects the overall economic turnover at such times. It also brought the need to adapt to the changing lifestyle that should be advocated through smaller communities for a bigger change in society. The loss of livelihood affected several families during the pandemic and the Mask Campaign initiative could restore their economic resources.

Similarly micro finance initiatives must be supported during times of need contributing to the continuous growth and development of a city and further of the state. Additionally, the community platform of SHG members should be further explored for integrating with health and nutrition frontline workers for a wider interaction and robust dissemination of programme objectives.

Footnotes

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Usage Pattern of Supplied Water in South Kolkata

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Abstract

Water is vital to life. Clean and safe water ensures healthier and productive societies and economies. It is for this reason water supply can be acknowledged as one of the essential urban services that are catered by the local self governments and local bodies in the Statutory Urban Areas, and Public Health and Engineering Department in the town and village areas in India. In Kolkata, planning for distribution of water and collection of fees is carried out by Kolkata Municipal Corporation. This research study¹ is carried out by conducting a questionnaire based field survey in selected areas of south Kolkata. It was found that although, around 91.6 % of houses receive water supply, a large section of households does not use the water directly for drinking and cooking purposes. In addition to that, some of them even spend a considerable amount to buy it. This phenomenon is not unique to Kolkata, however, this study is carried out in the twenty-five selected wards to understand the perception of the households of the said area as to what lead to such decision making by the households. For the purpose of the study Multistage Sampling Technique is used for primary data collection, and maps, mathematical and statistical techniques are used for analysis.

Keywords

Water supply, survey, households, receiving the service, pattern of usage.

Introduction

Urbanization is a natural phenomenon associated with economic growth. As economic activities increase over time, a city grows and starts generating positive externalities and social benefits that makes the city attractive for dwelling. As a consequence, densification occurs and economic activities multiply, and eventually a city gets denser. As the city gets denser, the resources are then to be distributed among more people. In case of urban services, the challenge increases to reach the benefits to every individuals of the economy.

This research study circumscribes some selected areas of Kolkata, the areas that has been going through immense densification in the last two and a half decades. These areas are Tollygunge, Jadavpur and Kasba, all of them lying to the south of the city. Over the time, the densification was observed to start from Ballygunge and Kasba areas and extend beyond Tolly Nulla in the south of the selected area and in the fringes beyond the Eastern Metropolitan Bypass road that was once considered to be the eastern boundary of the city. Traditionally, the places to the south of the Canal or beyond the fringes of the bypass road were considered less developed than the others areas because of the type of houses, transport connectivity, roads, types of shops, etc. Previously, around nineties most of the houses were not concrete; some are built of mud-tiled roofs and thatches or thin bamboo stripe walls, some were half concrete and some were concrete

but not well-planned and only very few were planned sanctioned houses. Only few roads were tarred properly and many houses were not connected to pucca roads, and the main means of transport were rickshaws.

The picture depicted in the previous paragraph changed dramatically in the last twenty-five years or so. Sanctioned plots, High-rise apartments, well-tarred smooth bitumen roads, roads connected by auto-rickshaws and e-rickshaws, over-crowded private light weight vehicles, and most importantly local markets and shops. This change in the scenario proves in all respect the evidences of densification, which itself shows the economy of Kolkata city has expanded over the years. But at the same time, the overall changed or changing picture raises few questions on the Municipal Services of those areas. Due to densification, the services had to expand and adjust to accommodate more people, make adequate provisioning for amenities and maintain economic well-being of the people.

The Kolkata Municipal Corporation provides all essential urban services that includes Water Supply, Waste Management, Sewerage and Sanitation, etc. This paper considered water supply for analytical purpose. This service requires huge infrastructure for production and distribution, and so essential a service that a small change in frequency of the service may have huge impact on the beneficiaries. Again, the reliability about the service becomes important as far as the beneficiaries are concerned. This paper, therefore investigates and develops an understanding about the pattern of usage of supplied water that reaches the households and the beneficiaries' perception about the same.

Data and Methodology

This study was conducted by using Primary Data collected from three Constituent Assemblies covering 25 selected Wards under Kolkata Municipal Corporation. A total of 500 samples

were collected by questionnaire-based interviews of the respondents. The technique of Multistage Sampling was adopted in the process to schedule the sample for analysis. The stages include Purposive sampling followed by Stratified Sampling to fit the Sampling Frame and Design. The three Constituent Assemblies were Tollygunge, Jadavpur and Kasba Constituencies, the ones that appear in the Electoral Voter Lists of India. Then the Random Stratified Sampling Technique was adopted to select samples from the list of names appearing in the Voter List.

Classification of the Sample Area into Zones

Why classification was important? The classification was done to keep track of the changes in human settlements over time. Or, in other words, it helps in visually understanding the development of the study area which had occurred over time. The zones were classified as follows.

For *densification of human settlements*, satellite images of Kolkata region were taken at four different points of time, and they are – years 1991, 1999, 2009 and 2014. According to the densification pattern, three time zones of development were noted as follows:-

Zone 1:
Dense Urban settlements appeared during 1991 to 1999

Zone 2:
Settlements appeared during 1999 to 2009

Zone 3:
Settlements appeared after 2009 (up to 2014)

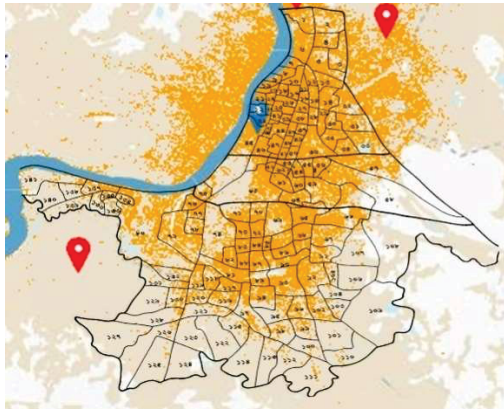


Figure 1: KMC Area Map with urban settlements (marked in Orange dots) in 1991.

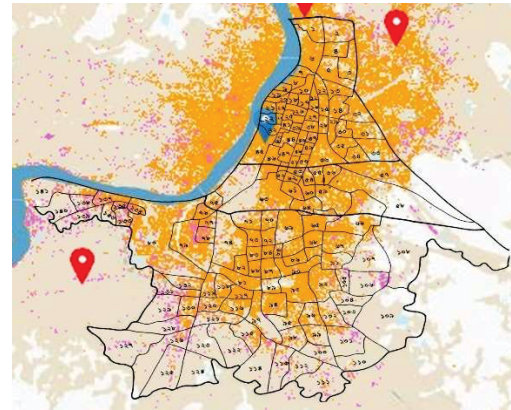


Figure 2: KMC Area Map with urban settlements in 1991(Orange dots) and 1999 (Pink dots).

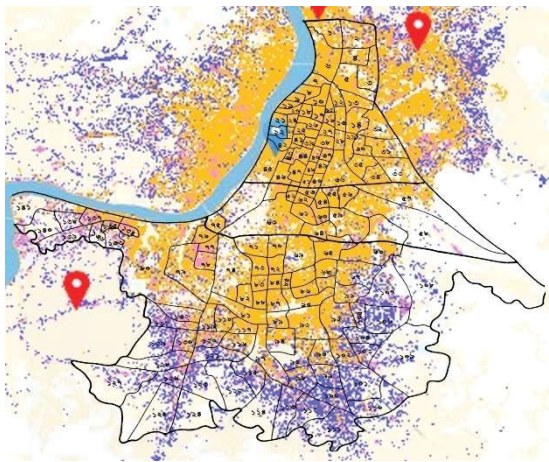


Figure 3: KMC Area Map with urban settlements in 1991(Orange dots), 1999 (Pink dots) and 2009 (Blue dots).

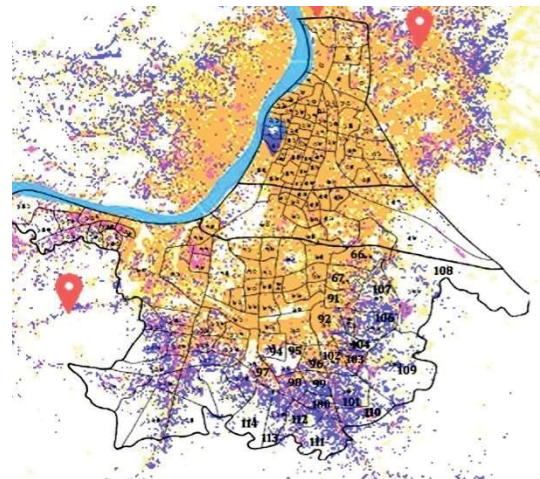


Figure 4: KMC Area Map with urban settlements in 1991(Orange dots), 1999 (Pink dots), 2009 (Blue dots) and 2014 (Yellow dots).

Zones: Wards Numbers

Zone 1: 66, 67, 91, 92, 94, 96

Zone 2: 95, 97, 98, 99, 102, 105

Zone 3: 100, 101, 103, 104, 106, 107, 108, 109, 110, 111, 112, 113, 114

Analytical Framework

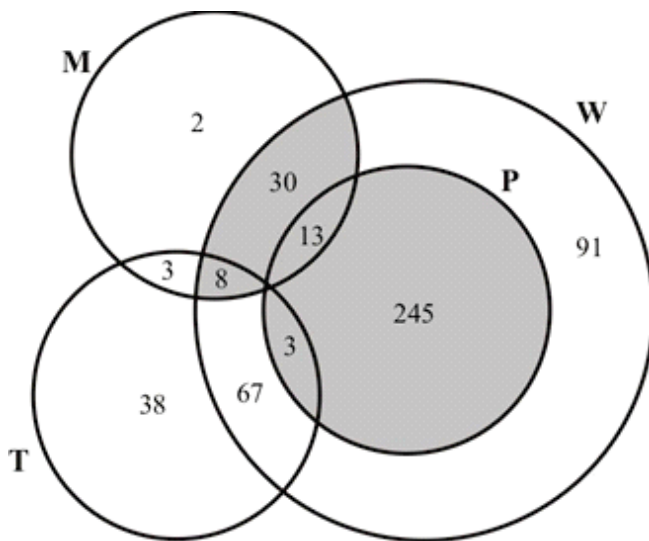
The figure below shows a Venn Diagram representing the usage pattern of water in the households. There are four sets whose description is given below.

$W = \{\text{Number of people receiving the service}\}$

$M = \{\text{Number of people who purchases water from the market}\}$
 $P = \{\text{Number of people who uses Water Purifier}\}$
 $T = \{\text{Number of people who collects water from the Tap by the roadside}\}$

T was found that around 457 (91.6%) people receives water supply and rest of 43 (8.6%) of people do not receive water supply at their homes.

Figure 5 : Usage of Water Supplied by the Corporation in the Selected Areas of Kolkata.



$W = 457$
 $(M \cap T) - W = 43$
 $W \cap M = 51$
 $W \cap T = 78$
 $W \cap P = 261$
 $W \cap (P \cap M) = 13$
 $W \cap (P \cap T) = 3$
 $W \cap M \cap T = 8$

The above Set notations show that 51 out of 457 (11.2%) people purchases water from the market even after getting the service, and interestingly 78 out of 457 (17%) people collects water from the taps. Among the section of people receiving service 261 (57.1%) purifies the water before consuming it.

Looking from the other point, only 91 (19.9%) of people uses water directly without spending any money or time. These figures reveal the fact that more than 80 percent of the people cannot rely on the supplied water and was making efforts to make it drinkable.

Result

Households using water purifier at home –

A total of 261 (57.1%) households out of a total of 457 who receives piped water supply from Kolkata Municipal Corporation, uses purifiers to treat water before consuming (mainly cooking and drinking) it. Among them, 13 households were there who reportedly purchased water from the market. Straight away, the 245 households who use purifiers only, were not relying on the resource, and such 'reliability' problem is discussed in the Discussion' section of this paper. However, a doubt of insufficiency of amount also pricked the analysis when 13 households were found to have been purchasing water from the market. During the interview with the respondents, a few of them revealed that they were purchasing water for their children because they wanted to minimize the risk of any contamination.

Households purchasing water from the market –

Two categories of people were there – beneficiaries and non-beneficiaries. Quite clearly, 5 out of 56 who were purchasing water from the market, did not received piped water supply, and therefore, being a non-beneficiary purchasing water was a safer option. For 38 households, in spite of being a beneficiary they purchased water. It has two types of indications –

- i) Receiving insufficient amount of water with respect to their household size; or
- ii) Minimizing the risk of contamination since child(ren) were present in the family.

The first option was found to be partially true as the average household sizes were 4 members (see table at the end). The second option may also be considered significant as 8 out of 13 families showed the presence of children.

Households collecting water from taps –

Survey result showed that 119 households were collecting water from the taps outside their home, and those taps were roadside ones. Among those 119 households, 41 of them were non-beneficiaries. It can be well understood for them as to why they were collecting water from taps outside homes. While, the rest of the 78 were collecting water from roadside taps even though they were piped water supply. Either of the following considerations were bothering them –

- i) Insufficient amount of water received from the supply; or
- ii) They were collecting piped water in the domestic reservoirs and that was used for washroom activities like bathing and washing. The water they were collecting from the taps was being exclusively used for cooking and drinking. Among them were few households who went to buy water from the markets for drinking purposes only.

Discussion

The results have shown that people were more inclined to diversifying the activities of water with the sources. In fact, selecting different sources of water also indicates the level of consciousness those sample households have with water. Water is a source of life, and it is also the source of various diseases if consumed in impure form. Thus, being skeptical about the quality is obvious for any conscious mind.

The sample of households of south Kolkata showed 91.2% of coverage of piped water supply. However,

only a few of them have been using it directly, without undergoing any post-procurement treatment. For others, the multiple selections of resources may be understood with the help of the following discussions.

The 'reliability' factor may have played a major role for such kind of selecting diversified sources by the households. The reliability may be associated with – (i) timeliness or frequency of service, and (ii) quality of good (here, water). The following are some of the factors on which the reliability factor centers around.

- Apartment type houses of the megalopolis. Kolkata is a megalopolis with high density of population. Higher density causes more people to accommodate in smaller spaces, and this phenomenon call for apartment type houses/ housing communities and gated communities. A metropolis or megalopolis is a large city which generates higher positive externalities, that eventually causes the standard of living to go higher. The mobility, market, opportunities and amenities creates the attractiveness of these places, and as a result people choose to compromise on space accommodation. On the other hand, such densification triggers immense pressure on the urban services. Anyways, apartments generally have reservoirs where the piped water is being collected. In those cases, 'using water directly' can be put out of question, i.e., post-procurement treatment at home is adopted by households before consuming (drinking or cooking) it.
- Non-confidence of Beneficiaries. As it was mentioned earlier, people tend to minimize risks of getting contaminated by a disease borne by water. This tendency is greater among those households where child(ren) are present, or health and medical issues persists, or even among health-conscious people.

- *Inconvenient infrastructure.* In both apartment-type and as well as individual-type houses, presence of reservoirs were seen during the survey. The infrastructure leaves no alternative ways of collecting the supplied water at home.

So far, the discussion was more confined to the occurrence of the phenomenon of multiple selections of resources of water by beneficiaries of water supply service. Now, another aspect of such phenomenon is the outcome of those activities. A huge amount of government spending is done for production of water. During interview with the office-bearers, it came out that the quality of water is safe and drinkable. So, if the amount of money being spent is not utilized properly, and consumers look out to spend a considerable amount over and above what they are already getting, then an economic loss is occurring. Under such circumstances, policy interventions may be welcomed to increase the efficiency of utilization of the resource. Policy intervention may come in the form of creating alternative infrastructures

followed by awareness programmes from the part of the municipal body to increase utilization of water supply.

Conclusion

For all urban services, local bodies play a vital role: from allocation, distribution to utilization, and maintaining efficiency of the scarce resources. It may be kept in mind while designing the mechanism of the service delivery that proper utilization of resources ensures sustainability. Thus, to avoid economic loss to occur, an alternative infrastructure at the inlet of supply into the houses may be set up. On the issue of non-confidence, proper awareness campaigns must be carried out by the local bodies. In this concluding section, it may be said that a lot of research work may be done in this area with different point of views, such as architectural, economics, engineering, etc. It may also be said that strong actions plans may be prepared for the local bodies to follow and effective delivery of water supply service can be achieved.

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Framework for Sustainable Water Governance in India through Inter and Intra-Generational Equity Integrating Rule of Law¹

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Abstract

Water is an indispensable asset for maintaining quality of life and production. This paper situates water resource management in India within the context of sustainable development, principles of intergenerational equity and rule of law. Legislations and institutions regulating water resource management is presented assessing policy implementation and compliance with regulation and political influences. The paper problematizes the implications of the current rule of law on the administration and governance of the quantity and quality of water towards water security and equitable access to clean water framing this as a key indicator of socio-economic development. In this regard, the water scenario comprising the historical context, organizational, financial and managerial structures, regulations, conflict resolution mechanism is presented. The assessment highlights the increasing demand, persisting unequal distribution of water among states, high economic dependency of the country on the agricultural sector and increasing urbanization. In this context, water laws which are central to implementation of policies, roles and functioning of national and state level institutions directly and indirectly involved in water management are examined. These include the Union Ministry of Jal Shakti (DoWRRDGR), the Central Water Commission (CWC), the Central Groundwater Board, the National Water Development Agency and the State departments of public works,

irrigation and water resources. The paper applies and recommends systems theory for segmenting water governance related issues and derives a decision-making framework for sustainable water governance towards economic growth and quality of life across generations.

Keywords

Water governance, institutions, sustainable water management, systems theory.

Introduction

Sustainable development as defined by the Brundtland Commission (Our Common Future, 1987) is development that meets the needs of the current generation without compromising the ability of future generations to meet their own needs. In this regard, inter and intra generational equity are key parameters. The former ensures protection of natural resources and the environment to benefit future generations and the latter enables the states to have a shared responsibility towards environment protection through “common but differentiated responsibility and respective capabilities” (Jain, 2021). The strength of a policy and decision maker lies in understanding these relationships, complementarities, and trade-offs and ensuring responsible governance through actions at the international, national, community and

individual levels. This aspect is strengthened by the Environmental rule of law central to sustainable development provides the basis for improving environmental governance by providing a foundation for environmental rights and obligations, essential for quality of life. **Rule of law**, as defined by the United Nations (UN) is a principle of governance in which all persons, institutions and entities, public and private, including the State itself, are accountable to laws that are publicly promulgated, equally enforced, independently adjudicated, and which are consistent with international human rights norms and standards. Water as an existential element for life is therefore central to this premise as a strategic asset and resource for inter and intra generational equity commerce and production. Recognizing this, water security is crucial for meeting the Sustainable Development Goals (SDGs), through SDG 6, which ensures access to water and sanitation for all.

Water Scenario –

- **In a ranking of the National Water Security Index (NWSI), the Asian Development Outlook 2020 (AWDO)² ranked India at 45th among 49 countries.** Water security is defined as the availability of adequate quantity and quality of water for safe, affordable, equitable and inclusive water supply and sanitation, sustainable livelihoods, healthy ecosystems and manageable water-related risks towards sustainable resilient rural–urban economies. **India's 29 states and 7 UTs (Union Territories) share its 20 major river basins.** This geographical context of interstate rivers frames the governance challenge towards water security. With total water demand in India expected to rise by over 70% by 2025, the demand-supply gap is also on the rise. (ADB, 2020c) (ADB, 2020a).
- **Water availability:** India has 4% of the world's **fresh-water resources** for 17% of

the world's population (1.3 billion people) and 2% of the global land mass. Out of 4000 billion cubic meter (bcm) annual rainfall, 690 bcm is utilizable surface water, 433 bcm is utilizable ground water and 1986 bcm is natural run-off. India receives 75% of its rainfall during the monsoon from June to September. Out of the annual replenishment in water resources, only 1123 bcm can be utilized for all development related interventions. Globally, India recorded the highest loss in terrestrial water storage (TWS) of 3 cms per year and 4 cms in some areas. **Per capita water in India was 1720 cubic meter (cum.) in 2010**, which is estimated to decrease to 1,367 cubic meters in 2031, according to the Union Ministry of Housing and Urban Affairs. Five river basins in India are 'absolute water scarce' (per capita water availability below 500 cubic meters), five are 'water scarce' (per capita water availability below 1,000 cubic meters) and three are 'water stressed' (per capita water availability below 1,700 cubic meters) according to the Falkenmark Water Stress Indicator³ which is supposed to increase by 2050 according to the State of India's Environment, 2020 (Pandey, 2021). As per international norms, countries with per-capita water availability less than 1700 cu.m./year categorized as water stressed (Dhavan, 2017).

- **Surface water in river systems:** India has 12 major river basins⁴ with a total catchment area of 253 million hectare (MH) and 46 medium river basins with a total catchment area of 26.4 MH. The Indus, Ganga-Yamuna and Brahmaputra River systems are perennial, receiving water through Himalayan Glaciers. All of the rivers originating in the peninsular region are non-perennial and dependent on rainfall. The 690

²The Asian Water Development Outlook (AWDO), ADB's flagship publication describes the water security status of Asia and the Pacific since 2007)

³Falkenmark Water Stress Indicator defines water scarcity as the total water resources available to the population of a region; measuring scarcity as the amount of renewable freshwater that is available for each person each year.

⁴River basins with more than 20,000 sq km catchment area are categorized as major and below 20,000 sq km are categorized as medium.

bcm available surface freshwater is insufficient for current development needs. (Central Water Commission, Ministry of Jal Shakti, Department of Water Resources, River Development and Ganga Rejuvenation, GoI, n.d.)

- **Groundwater governance:** Industrialization, urbanization and population growth coupled with inefficiencies in water use have resulted in groundwater depletion and a declining quality of surface water. Although industry is the largest contributor to India's GDP, agriculture accounts for nearly 90% of water use. Two-thirds of India's irrigation needs and 80% of domestic water needs are met using groundwater. Although India has one of the world's largest irrigation systems, this is characterized by high levels of inefficient water use (OECD, 2014). Availability of India's fresh water can meet the requirement of nearly 65% of total irrigated area, 85% of the rural drinking water supply and 50% of the urban drinking water needs of the country. **This has also resulted in India becoming the largest ground water extractor in the World.** As per the latest Dynamic Ground Water Resources Assessment (2017), carried out by the Central Ground Water Board (CGWB) jointly with the States, out of the total number of 6881 blocks / mandals / taluks / firqas, 1186 have been categorized as '**Over exploited**', meaning that the groundwater extracted for various purposes from these areas is more than what is replenished annually from rainfall and other sources. Additionally, low or absent water charging and energy subsidies for groundwater pumping leads to severe depletion of resources. Climate change impacts on groundwater may result in a long-term decline in groundwater storage, saline intrusion in coastal aquifers due to sea level rise and overall reduction of the resource. The national

programme of the Atal Bhujal Yojana aims to address these issues and tasks activities at the Gram Panchayat (GP), District, State and National levels: i) ensuring community participation in managing groundwater, ii) developing GP level water budgets and iii) preparing GP level Water Security Plans (GoI, 2020).

Water Governance –

- **India has an unequal distribution and usage of water, exacerbated by climate change.** Water planning in the country is driven by administrative boundaries rather than by river basins as hydrological units, resulting in water conflicts as most river basins are shared by several states with competing and increasing demands. Wide rainfall variance has led to uneven natural replenishment, variability of water resources and 60% or three of every five districts in India are unprepared for drought. In the absence of river basin management plans and active river basin authorities, these issues have intensified. India remains highly vulnerable to climate change with limited institutional capacity to adapt and mitigate impacts such as from floods. Cost of flooding is estimated to be \$1B per year, predicted to increase in temporal and spatial variability (IPCC 6).
- **Historical context:** Pre-independence, India comprised several semi-sovereign princely states with highly centralized water governance. For any dispute between the provinces, the decision of the Secretary of State was final with minimal decision-making authority to the provinces. Post-Independence, water related legislative powers were distributed between the Center and the States for optimum utilization while balancing interests of the States. Schedule 7 of the Constitution distinguishes between the use of

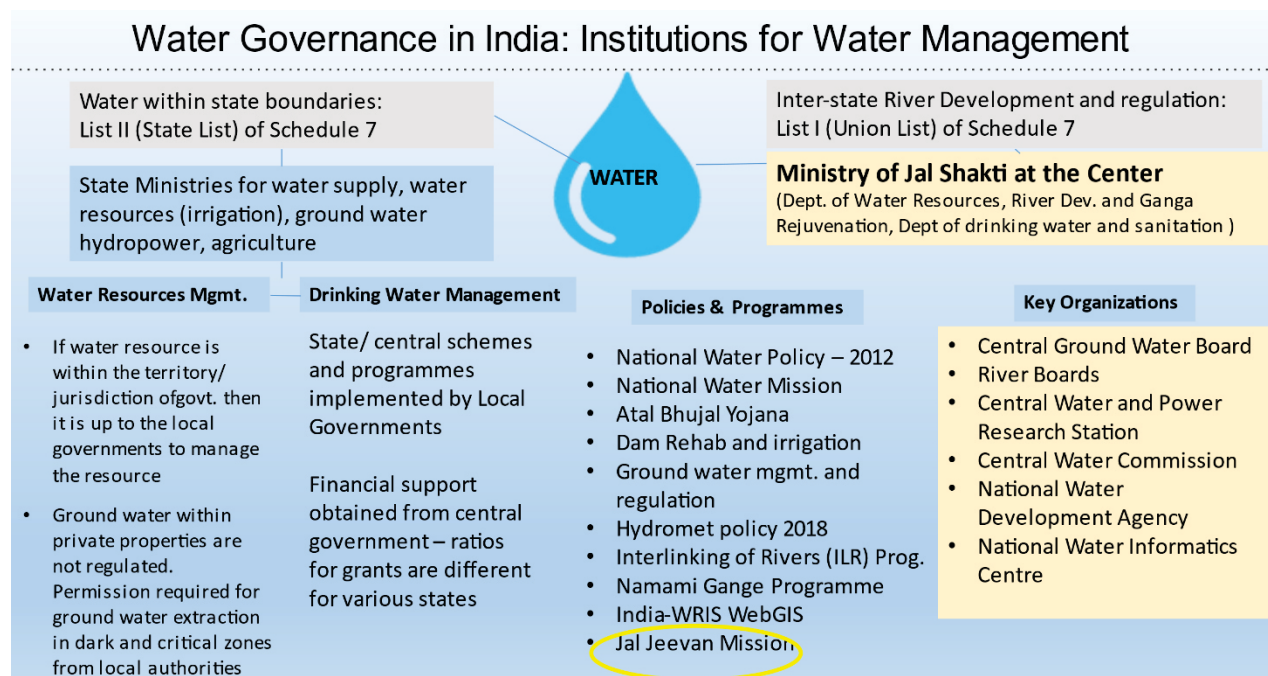
water within a state empowering the Union Parliament to formulate laws and mechanisms for regulating interstate rivers (Union List: Entry 56, List 1). States retain autonomy regarding water utilization for purposes of water supply, irrigation and canals, drainage and embankments and storage (State List: Entry 17 of List 2) This approach resulted in unequal and imprecise distribution of power between the Center and the States, creating federal-jurisdictional ambiguity (Modak & Ghosh, 2021). Shortfalls in comprehensive regulations for the water sector resulted in too much power to the government and the Irrigation Department (ID), with water users deprived of their rights. As most of the water-related legal provisions enacted in the past were characterized by water surplus conditions, these fall short in reflecting the current conditions of water scarcity and water conflicts. (Saleth, 2004). To address such issues Command Area Development Programme (CADP) was initiated in 1974-1975 by the Central Government as a beginning of a holistic approach to water management (Pradhan & Bhattacharya, 2019).

- **Constitutional provisions and rule of law, organization and administration:** Under Indian Constitution, the subject “water” is under the Entry 17 of the State List. The Center plans water allocation and provides technical support for large projects for power generation, irrigation and drinking water and has the mandate to resolve conflicts over use of interstate rivers. The state water administration-Irrigation, Public Works, and the Water Resources Departments in different states is responsible for the construction, maintenance, and management of water projects. Regarding water pricing and cost recovery, the administrative systems differ in states partly due to historical reasons. Water administration in many states also has overlapping or unclear

administrative and functional responsibilities (Saleth, 2004). Interstate river water disputes emerge and recur frequently. Settlements are very delayed, most often marked by conflicting litigations. Escalation of rulings by states and/or recurrence of disputes incur large costs to the economy. The Interstate (River) Water Disputes Act 1956, for resolving interstate river water disputes, has been amended a dozen times, with another amendment bill been tabled before the Parliament in 2018. Additionally, the River Boards Act 1956, enacted at the same time as the former and meant to enable interstate collaboration, has never been used to create any river boards. The river boards so far created draw on alternative channels, either from notifications of the government, or state-bifurcation laws, or sometimes through separate acts of Parliament. The River Boards Act is currently being proposed to be repealed since the concept of basin, sub-basin, and integrated river basin management and river basin master plan approaches are absent. A River Basin Management Act was proposed in the place of the River Boards Act to facilitate the establishment of “River Basin Authorities” for the regulation and development of interstate river basins. However, this has not materialized.

- **Organizational Framework:** The Central Water Commission (CWC), the Central Groundwater Board (CGB), and the National Water Development Agency — under the Ministry of Jal Shakti — provide the overall technical support whereas the research and training support is provided at the state level by the Water and Land Management Institutes, Agricultural Universities, and other research institutions. National Water Resources Council (NWRC) set up in 1983 and the National Water Board (NWB) set up in 1990 are important entities in the Indian water sector.

Figure 1: Water Governance in India



Data Source: (1) Modak and Ghosh, 2021, *Federalism and Interstate River Water Governance in India*, Observer Research Foundation (2) Ministry of Jal Shakti, Government of India, (<http://jalshakti-dowr.gov.in/>)

Figure 1 charts water governance in India showing the key institutions for water management at national and state level with policies and programmes.

- Water Governance at Tier 3:** In 1985 Ministry of Water Resources (MoWR) initiated farmer involvement for managing irrigation to align with the National Water Policy, adopted in 1987. Water User Associations (WUA) formed on the principal of Participatory Irrigation Management (PIM) are responsible for: maintaining irrigation systems in their operational areas; distribution of water to the beneficiary farmers; assisting the irrigation department in assessing water demand and collection of water charges; resolving disputes and monitoring water flows. PIM aims to create ownership of water resources and the irrigation system among the users to primarily improve productivity and service deliveries through better operation and

maintenance, optimize natural precipitation, resource utilization and equity in water distribution, facilitate crop choices, promote collective responsibility for water charge collection and create partnership of users with the Irrigation Agency. Water Governance at the local level through 'Panchayats & Municipalities' is covered by the 73rd Constitutional Amendment wherein the subjects of "Minor irrigation, Water management and Watershed development", "drinking water" and "maintenance of community assets" from the State List are devolved to the Local Governments.

- Water quality:** The Ministry of Environment, Forests and Climate Change (MoEFCC) with the Central and State Pollution Control Boards are responsible for surveillance, guidance, and dissemination of technical and statistical data on water pollution as per the mandates of the Water (Prevention and Control of Pollution)

Act, 1974. Penalties and actions for non-compliance and violators are also instituted. Standards for water quality monitoring are established by the Bureau of Indian Standards (BIS). Grievances can be raised before the National Green Tribunal (NGT) which is the judicial body with jurisdiction over all civil cases involving a substantial environment related question. Surface water quality is monitored under the National Water Quality Monitoring Programme (NWMP), comprising 4111 stations for monthly, quarterly, half yearly and yearly monitoring basis. Discharge of untreated sewage and industrial effluents into water bodies is the most important source of water pollution in India. Lack of access to improved water supply and inadequate sanitation persists which are major causes of disease and poor health (CPCB | Central Pollution Control Board, n.d.).

Issues and Challenges:

- **Water quality:** Water-related diseases in India are 70% of the total disease burden killing over 1 million including an estimated 0.5 million children per year resulting in a national loss estimated to be about 4% of GDP. The Ganges is one of the most polluted rivers in the world affecting a large dependent population. Capacity shortfalls persist in managing water eco-systems, administrative responsibility is fragmented across multiple agencies lacking transboundary cooperation. Ambiguities remain in policy, legal requirements, procedures or guidelines for establishing environmental flows, currently focused largely on hydropower.
- **Parliamentary Laws on Water Sharing:** The River Boards Act 1956 which promotes interstate collaboration for river management, has never been used to create any river boards due to the lack of river basin master plan approaches and the states exercising their constitutional power to supersede any scope of collaboration. Regarding the **Inter-State River Water Disputes Acts**, the composition of the tribunal is not multidisciplinary, limited to the judiciary. Shortfalls in transparency regarding water availability to all stakeholders adds to the difficulty in setting up a baseline for adjudication. Speculation of moving the Water Management subject from State List to Concurrent List remains under debate.
- **Women remain the most affected stakeholders:** In particular, in rural India where women are primarily responsible to fetch water for household use. Drying sources add burden due to increasing distances. Access to clean water, for which India targets complete access by 2024, aims to address this. Though water, sanitation and hygiene (WASH) policies are designed with gender-sensitivity these fall short in measuring its gendered impact due to lack of quantitative data or systematic monitoring to scientifically assess gender gap. Only one in every five or 21.4 percent households in India have piped drinking water connections. In rural India, just 11.3 percent households receive potable water directly at home. The “Har Ghar Nal Se Jal” scheme under the Jal Jeevan Mission proposes to overcome this gap and address quality and efficiency of supply. The magnitude of the challenge is high with drinking water utilization in 2010 at **56 bcm** and drinking water demand projected to **73 bcm** by 2025 (GOI, 2012) (GOI, MOSPI, n.d.).
- **Water-energy nexus challenges:** India requires 700 GW of additional generating capacity by 2050 to meet energy demands. The demand for water for energy and industry is estimated to increase from 17 bcm In 2010 to 38 bcm in 2025. The power subsidies for irrigation and continued dependence on ground water lead to depleting groundwater

levels. **India has the highest annual agricultural water withdrawals in the world increasing from 688 bcm in 2010 to 910 bcm in 2025.** Low water use efficiencies and less productivity of irrigated area due to deferred maintenance water charges and poor collection systems aggravates the situation. WUA capacities and uptake of efficient water-use technologies remains inadequate. The 2018 Composite Water Management Index, developed by NITI Aayog, notes that water demand in the country will exceed supply by 2030 (DTE, 2021).

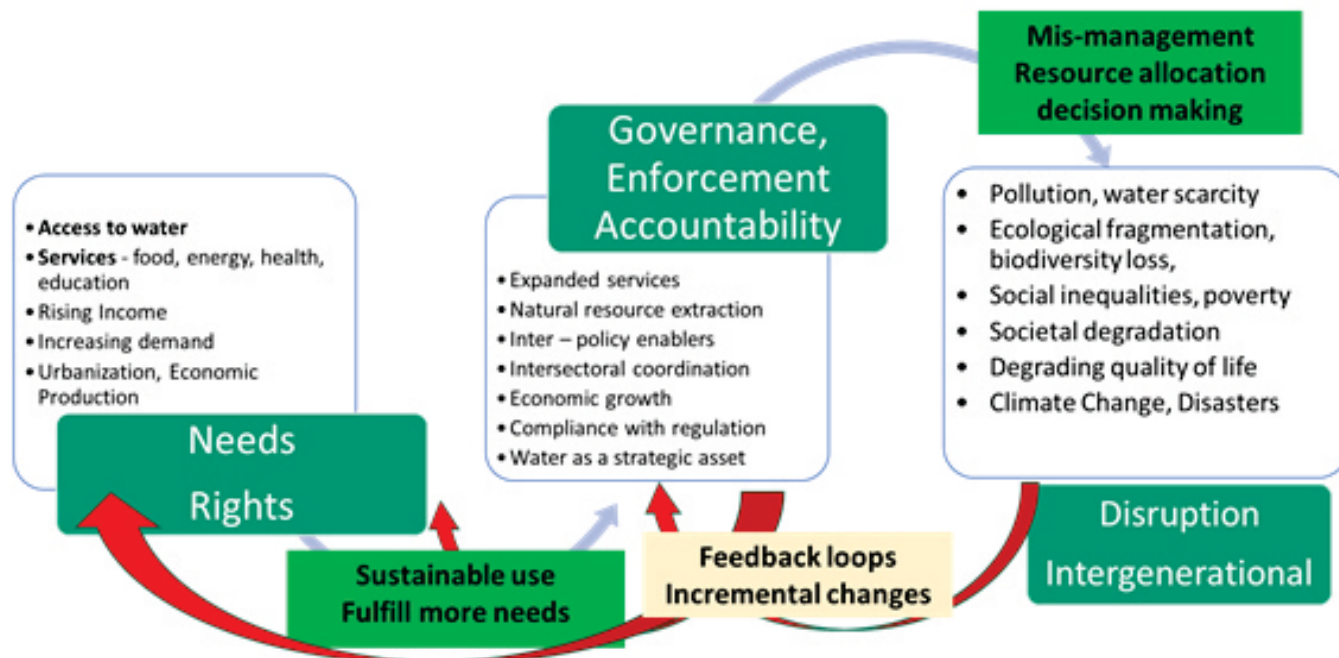
Recommendations for a Way Forward

These aim to guide the required paradigm shifts for strengthening water governance.

- **Application of systems theory:** The analysis in sections above reveals the need for a re-calibration of institutions by improving understanding of environment, social and production relations required to manage water as a resource (Kulkarni, 2013). In this regard,

application of systems theory is appropriate as it helps to isolate and re-orient rigid mechanisms based on evidence-based feedback. Typically, a “system” is a configuration of interconnected and related parts in nature and society and helps to understand groups of objects working together towards a result. (About Systems Engineering, n.d.) (Environment and Ecology, 2020). In administration, the systems theory provides a robust basis to address interrelated interdepartmental coordination challenges. Feedback is a critical element for a system to function. It is the influence of earlier outputs of the system and other systems including externalities and political pressures (Sharkansky, I., 1978). **Figure 2 shows the application of systems theory for the sustainable governance of water as a strategic asset.** This identifies the key elements of governance and accountability necessary to respond to demand, needs and rights and inform decisions towards the desired output, ensuring regular feedback for the sustainable use of the resource. The implications of mismanagement are also highlighted.

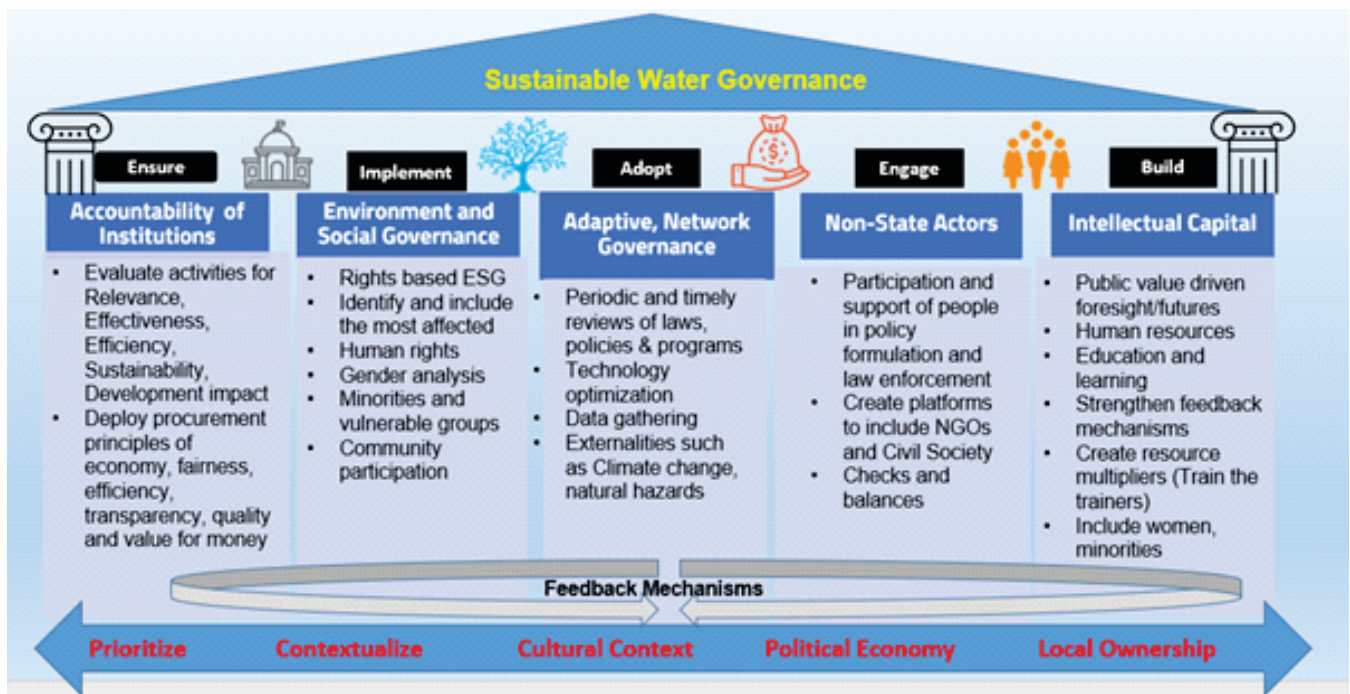
Figure 2 : Application of Systems Theory for Water Governance



- Proposed framework for sustainable water governance:** Systems theory forms the conceptual basis for this proposed decision-making framework. Insights from the institutional analysis inform the five identified pillars shown in **Figure 3:** (1) Ensure **Accountability of Institutions** by: evaluating policies, programmes, projects and interventions for relevance, effectiveness, efficiency, sustainability and development impact, for timely course corrections; deploying procurement principles of economy, fairness, efficiency, transparency, quality, and value for money; (2) Implement rights based **Environment and Social Governance (ESG)** by including the most affected and using appropriate tools and evidence-based data for compliance, gender analysis, community participation; (3) Adopt **Adaptive and Network Governance**

through periodic and timely reviews of laws, policies and programmes, technology optimization, data gathering and addressing climate change; (4) Engage **Non-State Actors** through participation in policy formulation and law enforcement, creating platforms to include NGOs and Civil Society and internalizing checks and balances; (5) Build **Intellectual Capital** through public value driven foresight/future, human resources consolidation, education and learning, strengthening feedback mechanisms, creating resource multipliers. The elements within each pillar can be integrated vertically and horizontally with feedback mechanisms to enable administrators and policy makers to incrementally recalibrate institutions by prioritizing, contextualizing, recognizing political economic situations and increasing local ownership.

Figure 3: Framework for Sustainable Water Governance



Water being existential, makes its governance a key measure of development for India. The multiple programmes initiated, summarized in **Figure 3**, address various Integrated Water Resources Management (IWRM) related dimensions required for water security. However, outcomes remain at risk

due to the persisting and challenging management and administrative gaps in policy as well as its implementation. The recommended framework provides a road map for administrators to manage this finite resource as a common good and economic growth. The time for India is of essence.

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ROUND & ABOUT

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Indoor Pollution in Offices

Post 1970s we are living in an age of environment consciousness. Earlier there was focus on environmental pollution. However, over the years the hazards of indoor pollution has come to light, which may be equal to or more than the outdoor pollution, as substantial part of the 24 hours cycle of our lives is spent inside the houses or inside the offices. Environment, environmental pollution is a matter of huge legislations and studies and we often come to know how hazardous our environment is. Many authorities and studies have pointed out the causes, hazards and ways to ease out the indoor pollution. Green building movement is an off-shoot of such studies.

Report of a study on modern offices conducted by the Green Building Certification Inc (GBCI) and Saint-Gobain Research India, came out in January, 2022. The study was conducted in 9 cities covering 3 climatic zones- Mumbai, Pune, Delhi, Noida, Gurgaon, Jaipur, Chennai Coimbatore and Bengaluru. It has re-iterated the findings that are alarming. A few broad findings are as under:

- Inadequate design, operation and maintenance and lack of awareness on indoor environment quality are the reasons behind poor indoor environment in most offices. The report inter alia, said that 67% of offices had NO₂ higher than recommended levels. Filters were found in only 10% of spaces.
- 63% of spaces had Particulate Matter (PM) higher than the threshold and 40% of spaces did not have filters.
- **Indoor factors impacting the occupants the most:** High levels of NO₂, lack of access to outdoor, views and inadequate lighting.
- Main factors linked with occupants feeling fatigued were poor thermal comfort conditions and high levels of indoor background noise.

The study reinforces the belief that even in posh looking offices, there is problem of indoor pollution, which needs to taken into account by the architects and engineers.

(Reference: The Times of India, Mumbai, 18 January, 2022).

Maharashtra Samruddhi Expressway – Potential for 19 new towns to come up along.

An expressway connecting Mumbai and Nagpur covering 701 kms and having six corridors is under construction from 2019. Recently its progress was shared with the press, when Mr. Anilkumar Gaikwad, Joint Managing Director of Maharashtra State Road Development Corporation gave an interview to the Press. Purpose of including this news in this column is that the development of expressway with development corridors as its part gives a direct boost to urbanization. When at least 75 per cent of population of an area engages in non-agricultural activities and density of population increases to 400 people per sq. km. that area becomes an urban area. Coming up of new urban areas has many multiplier effects for economic and social development creates a lot of employment and self-employment opportunities. These are the cherished objectives of government. Before mentioning the benefits of the Samruddhi Expressway, it would be pertinent to see the grand perspective plan of India that Government of India has announced in September, 2019.

Roads development is an essential requirement of economic development for the obvious reasons of providing connectivity, boost to trade and commerce, area developments, creation of employment and self-employment opportunities, etc. For this reasons India has embarked upon an ambitious program of roads development.

Bharatmala Pariyojana is the India's biggest road development programme that includes development of 60,000 km of National Highway with an investments worth Rs. 6,92,324 crores. Other features of this grand programme are as under:

44 Economic Corridors, 9,000 km length, Rs.1,20,000 crore worth investments.	2,000 km of roads being built with investments worth Rs. 25,000 crore to enhance trade with Nepal, Bhutan, Bangladesh and Myanmar.
2,000 km of roads being built to improve Coastal and Port connectivity, worth Rs.20,000 crore.	28 ring roads, 45 bypasses, 34 lane expansion projects.
All district headquarters to be connected to National Highways, 9,000 km of length.	Road development in Char Dham fast tracking with Rs. 12,000 crore investments.
Developing roads to improve connectivity to the North East and link Inland Waterways.	12 Greenfield Expressways, spanning 1,900 km. The 800 km Delhi-Mumbai Expressway worth Rs. 40,000 crore underway.

Considering the plan and execution of Samruddhi Expressway in the context of the grand plan of road development in the country, the following features and expected benefits are noteworthy.

The project is expected to be a road of development for Maharashtra State, when it will be completed in March, 2023.

The project will have a direct impact on the economic and social development of backward regions of Marathwada and Vidarbha.	Expressway will create direct connectivity of about 10 districts with the JNPT, port.
It is expected to generate employment and self-employment to 2 lakh people.	The present travel time of 16 hours between Nagpur and Mumbai will be reduced to 8 hours.
Alongside the Expressway 19 new towns will come up.	Freight traffic will get a boost.
In all 10 districts of Maharashtra will benefit from the project.	

(References: 1. Website of the Ministry of Road Transport. 2. PIB announcement in the press. Reference here is the Indian Express, Mumbai dated 5 September, 2019, in which the grand plan of road development was reported. 3. Website of MSRDC. 4. Loksatta, 1 February, 2022.

India's Forest Cover Rising - More Carbon Sequestered

Every year Ministry of Environment, Forests and Climate Changes has brought out *The India State of Forests Report 2021*. The report is an assessment of India's forest and tree cover, published every two years. Trees and forests have all along had an intimate relation with mankind, and form a bounty for the planet. They have also appeared as savior in the wake of threat of global warming. NASA's Earth Observatory says that “*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 dissolved). Plants on land have taken up approximately 25% of the carbon that humans have put into the atmosphere.*”

The IFSR 2021 is a storehouse of information on the subject which is used in planning, formulation of policies in forest management as well as forestry and agro-forestry sectors. . A few glaring facts are mentioned as under:

- In the last two years, India's forest cover has increased by 721 sq km taking the total forest cover to **7,13,789 sq km**, which is **21.71 %** of the country's geographical area.

The target is to have 33% of geographical area under forest cover.

- The report says that India's total forest cover has increased by 1540 sq km between 2019 and 2021 and its tree cover by 721 sq km in the same period. The total increase adds up to 2261 sq km.
- 9.34% of India's forest cover is through open forests and just 3.04% by way of very dense forests (virgin natural forests). Moderately dense forests account for 9.33% of total forest cover.
- Total mangrove cover in the country is 4992 sq km with a 17 sq km increase vis a vis 2019.
- **Total carbon stock** in country's forest is estimated to be 7204 million tonnes - an increase of 79.4 million tonnes as compared to the last assessment of 2019.

(References: 1. Website of Ministry of Environment, Forests and Climate Change, 2. The Times of India, Mumbai, 14 January, 2022, 3. The Indian Express, Mumbai, 14 January, 2022, 4. The Economic Times, Mumbai, 14 March, 2022).

Second Part of the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report

In the previous two issues, (i) prominent findings of IPCC 6th Assessment Report (*The Physical Science Basis*) and (ii) the major decisions of the 26th Conference of Parties relating to climate change, were briefly mentioned. The Assessment Reports [A.R.] constitutes the authorized version on the explanations of climate change, its causes, its features, likely impacts, etc. The report comes in three different parts. The second part of the Report which has come out in February, 2022 relates to *climate change impacts, risks and vulnerabilities and adaptation options*. It is a voluminous report containing a large number of graphs, charts, tables, figures, etc. with a pithy text. As many as 270 authors from 67 countries, including India, compiled the Report after scientifically reviewing 62,416 comments. It warns the world about the risks the world and countries are facing, and also give adaptation options. The Assessment Reports of the IPCC reflect the state of affairs of climate mentioned in them and future likely scenarios predicted are always alarming, pointing out to the dire consequences, the mankind is facing. A few of the major findings of the Report (*out of hundreds of such findings*) are as under:

- For the first, the A.R. made an assessment of regional and sectoral impacts of climate change. The report points risks to coastal cities of India to the States in Himalayan belt. The cities in India will be experiencing more heat stress, urban floods, salinity ingress due to sea-level increase and other climate induced hazards such a cyclones.
- The Reports says that frequency and intensity of extreme climatic conditions such as heavy precipitation, landslides and changing water cycle in the Himalayas will increase.
- Concerning Indian Mega-cities, it has stated that Mumbai is at high risk of sea-level rise and flooding. Ahmadabad faces serious dangers of heat waves. While these are common risks faced by the two cities, the Report has quantified these risks in clear terms.

- As regards health impacts, the Report has found that climate change is increasing vector-borne and water-borne diseases such as malaria or dengue, particularly in sub-tropical regions of Asia. Further it said that deaths related to circulatory, respiratory, diabetic and infectious diseases as well as infant mortality are likely to increase with rise in temperature.
- The Report prominently quotes the adaptation programmes in cities such as Surat, Bhubaneswar, and Indore, which have enabled people to make cities resilient to climate change. It further says that ancient Indian architecture that had used passive cooling to combat heat stress could be revived. Further, it said blue-water infrastructure such as the cascade of lakes in south India had immense ecological importance.

About the Process: The overall procedure under the United Nations Framework Convention for Climate Change (UNFCCC) is that the reports of the IPCC and other major happenings as regards are considered in the annual Conference of Parties, in which representatives from 195 countries participate. In the conference a review is taken of the action taken by the parties and further course of action is decided. Paris Agreement 2015 between the Parties (i.e. countries) is the agreed roadmap for action by all the countries. As each country is bound to act upon the directives under the Paris Agreement, it is incumbent on it to take action accordingly.

(References: 1. The Times of India, Mumbai, 1 March, 2022, 2. The Indian Express, Mumbai, 1 March, 2022).

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♦ Ms. Mahesh Pathak, IAS	Principal Secretary, Urban Development, Government of Maharashtra, Mumbai.	Ex-Officio Chairman
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♦ Ms. Utkarsha Kavadi	Director, Regional Centre for Urban and Environmental Studies, All India Institute of Local Self-Government, Mumbai.	Member-Secretary

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All India Institute of Local Self-Government, Mumbai**

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