

A CULTURAL PARADIGM FOR SUSTAINABLE DEVELOPMENT OF CITIES

Sub Theme: Culture, Consumption and Sustainability of Cities

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Summary

1. INTRODUCTION

India is at the brink of an urban revolution. Population in towns and cities is projected to reach 600 million, accounting for 40% of the population by 2031. While the major metropolitan cities of India are already bursting at the seams, it is our Tier II and Tier III cities, which show promise of majority growth in the future. However, the current growth trends are marked by urban sprawl, shortages of infrastructure, rising air pollution and environmental degradation, loss of identity and cultural capital, absence of public spaces and a clear need for a new model for urban development; one which is implementable within the current governance framework.

At the same time, mapping the Indian consumption landscape of smaller cities, depicts that higher disposable income, increased demographic dividend of younger generation and heightened aspirations in a digitally connected nation, is leading to consumer demand patterns which were earlier unique to metros. In fact, smaller cities have taken the baton and are leading the charge with an FMCG Value Growth of 58.6% as against 49.8% in the Metros. (Nielsen, 2013).

India, as a historic nation with several millennia of thriving urban civilisations behind it, has much to offer to modern cities emerging in the same geographic and cultural environments.

This paper brings to the forefront, Tier II & III cities which are on the path of 'modern urbanisation' and opportunities for sustainable development leveraging their inherent physical and cultural dynamics.

Cities such as Jaipur, Jalandhar, Lucknow, Pondicherry and Mysore have long been urban settlements with a sustained growth pattern. Today, when metros have stagnated growth potential, these tier II and III cities offer massive potential for growth and development. These cities having lower real estate rates and salary expectations, reliable price fluxes and increasing impatient capital, are conducive to concepts such as walk-to-work, a balanced lifestyle, favourable media exposure, emergence of new industries and affinity for retail. Be it banks, electronic companies or manufacturing industries, all are eyeing smaller cities for more profit.

Yet, as these transform to modern cities, there are some basic elements which go missing from their traditional growth pattern:

- **Relationship with natural capital**

Since centuries, civilizations have maintained a symbiotic relationship with their natural habitat. Development has been a holistic function, encouraging interaction of humans with biodiversity wherein trees became the nodal points of interactions in the form of chauk/panchayat centre etc and ponds or water bodies became the loci, in the regimen of men, women, children and animals alike; never once becoming a point of conflict for either human, animals or plants. However, the recent rapid, unplanned development, led entirely by market forces has taken precedence over societal norms witnessing a drastic change in environment. Preferential allotment of space and allocation of funds in favour of corporate giants has led to adoption of a constricted approach to construction centred on serving humans, with prevailing building guidelines failing to nurture their relationship with the local flora and fauna.

- **Consideration to city capacity**

Compactness is another aspect of our cities to have faced the brunt of modern urbanisation. Long distance travel has become remarkably mainstream and the city radius is on a continuous rise. Lack of a decentralised model has led to increased heat island effect and unabated air pollution.

- **Robust cultural identity**

The genesis of most historic cities boasts of a certain political, economic or cultural significance. They emerged as centres for growth in their region, owing to possession of key assets (social or physical) which had the potential to transform lifestyles. Amidst the race for urbanization spurred by globalization, modern cities are gradually becoming

clones of each other wherein there is a visible attempt to fake stereotypes, be it in the form of buildings, markets, plazas or parks. (Hintz, 2015) This is leading to a loss of our identity as a city, as a culture and as a living settlement. Homogeneous branding and marketing of people, spaces and things alike, be it in New York, Mumbai or Perth is steadily driving out their uniqueness. Maggie Wrigley in her essay titled, ‘City neighbourhoods losing character’ has beautifully explained how in the New York city having once the most vibrant spaces, the most characteristic neighbourhoods has simply lost it all in what can be called as gentrification but a luxury which costs the city its soul. (Hammett & Hammett, 2012) Today, most of our Indian cities are also facing similar issues where they are readily embracing globalization for good, forgetting much of its heritage, its culture, its soul.

In order to gauge the inherent potential of our cities, we have developed a framework of urban development to capture the essence of a city, pivoted on the concept of centrality.

2. STAGES OF URBAN DEVELOPMENT

Any city in its course of urban development undergoes different stages of urbanisation similar to a human lifespan and is correspondingly recognised as a centre for growth, consumption, change & innovation, economic impact and leadership in the region. Following is a brief introduction to each stage, giving insights into their unique nature and a fundamental way forward:



- Stage 1, Childhood; City as centre of Growth

A prudent growth of a settlement is often overpowered by the dire need of growth. Hence, the foremost requirement for urbanisation of a town, as with a toddler, is-

progression; progression towards development of infrastructure, amenities, facilities and opportunities. The infrastructure plan incorporating services such as Transport, Electricity, District cooling/heating systems, Sewerage, Drainage, and ICT etc. if planned and detailed in the city master-plan would significantly help lay the foundation for cities to serve as a nucleus of opportunities in the future. Infrastructure planning, complementary to a city's strengths at its nascent stage, significantly avoids haphazard development at a later stage.

- **Stage 2, Adolescence; City as centre of Consumption:**

Consumption patterns of present day affluent cities has inspired a lifestyle of needlessly high consumption and demand cycle among the masses, leading to an unsustainable model of growth. As modern cities, in their teens, emerge with similar choices and aspirations, there is a pressing need to sensitise the local populace of the resulting impact. A first step in conducting an informed awareness initiative would be to map the consumption patterns of different cities with respect to demographic indicators. The identified target groups in each city, be it the youth, elderly, working or non-working segment, can be subject to a focussed awareness plan, implemented through an appropriate medium (digital, radio and newspaper, aided movements, public hoardings or advertisements). A change in urban lifestyle towards an energy efficient and sensitive culture would automatically help to reinforce the path of urban development.

- **Stage 3, Youth; City as centre for Change and Innovation:**

Cities in their youth, are home to some of the brightest and most educated minds of their region. Implementation of Stage 1 and 2, giving insights into the infrastructure capacity and lifestyle of a city, can assist in true quantification of parameters such as amount of actual waste generated, honest demand for energy in various sectors, critical usage of water, essential transport modes and others for which efficient policies and innovative systems can be created. The strength of every city lies in the cultural and traditional roots. With years of experience, they have altered, adjusted and evolved with the settlements to meet the needs and likes of people. Therefore, a unique roadmap for every city, adapted to its typical demands, utilising its traditional skills and wisdom can be a game changer in creative development of modern cities. Education and Academia play a significant role at this stage, having the onus to guide and motivate individuals for adept research and setting benchmarks for others to follow in progression.

- **Stage 4, Middle Age; City as centre for Economic Impact:**

By design, conscious interventions in all the above stages, would lead to a sustainable model of growth or a stable mid-life scenario. Coupled with conscious consumption habits (Stage 2) and innovations in lifestyle (Stage 3), market forces can effortlessly pave way for green growth. The evolving demand appetite of the small cities, diverted towards sustainability in a planned and progressive manner, would not decelerate their purchasing power but motivate them towards products, systems and services which are an overall asset to the city. A renewed economic impetus would therefore emerge for definitive market interventions pertaining to the specific requirements of the city to be catered to and supplemented with.

- **Stage 5, Old Age; City as centre for Leadership**

Urbanization is a very complex web of intertwined, associative systems such as housing, retail, commercial and industrial segments, each with their corresponding systems of transport, waste, energy, water, sewerage etc. involving a definite need of an effective and comprehensive policy framework. In addition, sustaining a culture of urbanisation discussed in the former stages, requires leadership and management which is liberal yet forceful in its implementation of various propositions. Hence, in order to sustain the proposed urbanisation pattern, the administration needs to strengthen and equip itself for effective implementation of systems and dynamically adapt to change.

In the above framework, theoretically one stage would lead to another. However, in reality, all these stages exist simultaneously; similar to a joint family where different age groups co-exist and help each other grow and accomplish their ends.

Table 1 gives an indicative application of five Indian cities- Aligarh, Jalandhar, Pondicherry, Mangalore and Udaipur- to each aspect of urbanisation i.e. current status of infrastructure, consumption, culture, economy and leadership. Upon mapping the performance of our cities in each of these ‘stages of life’, we observe, that for a city to be strong and resilient, all these stages of urbanisation need to be strengthened simultaneously.

Modern cities usually showcase a lopsided development paradigm with ‘Growth’ and ‘Economic Impact’ emerging as sole drivers, with little or no reinforcement from other segments, making them vulnerable to change and future adversities.

The following section supplements the five stages of urbanisation with assets which can help modern cities to identify their potential, based on available resources and advance on sustainable trajectories.

Table 1: Application of Five Indian Cities to the Five Aspects of Urbanisation

	Jalandhar	Aligarh	Pondicherry	Mangalore	Udaipur
Growth (infrastructure)	Situated on the GT Road; Major Road and Rail junction; Houses a large number of shopping malls, among the highest no. of hospitals in Asia and excellent sports facilities at city level; Educational institutes include- NIT Jalandhar, DAV University, Lovely Professional University	55 th fastest growing city in India; Situated on GT Road, NH-91, NH-93, Yamuna expressway, 4-lane Highway, A-class Railway Station; Educational institutes include- AMU, Govt. Homeopathic Medical College, Sports University; Super speciality trauma centre,	Situated on East coast road, Connectivity primarily through Chennai, Strong Internal transport system, Universities and higher education institutes are limited.	Chief port city, 8 th cleanest city of India, 13 th best destination for business in India, most cosmopolitan non-metro city, largest city in Coastal and Malnad regions of Karnataka, higher education hub with flourishing servicing sector, fastest growing non-metro, massive investments, institutes dating back to 1890s, efforts towards improved electricity, water supply and waste management	Popular tourist destination, lies on the Golden quadrilateral connecting Delhi and Mumbai, well developed lake system, lacks organised sewerage system, scored poorly in clean city movement, education infrastructure coming up with IIM, model ICT system implemented in Govt. schools,
Consumption (demographics)	(2011) – 873725, (% of 0-6popu) – 9.7,	(2011) – 909559, (% of 0-6popu) – 13,	(2011) – 654392, (% of 0-6popu) – 9.7,	(2011) – 619664, (% of 0-6popu) – 8.9,	(2011) – 475150, (% of 0-6popu) – 10.5, S
Provisional	Sex Ratio - 883	Sex Ratio - 884	Sex Ratio - 1033	Sex Ratio - 1014	Sex Ratio - 925
Population	Literacy – 85.46,	Sex Ratio - 884	Literacy – 89.12,	Literacy – 93.66,	Literacy – 90.43,

Totals, Census of India (2011)	Male Lit-87.97, Fem Lit-82.63, Popu density- 18600/sqkm	Literacy – 70.54, Male Lit-75.82, Fem Lit-64.58, Popu density- 39420/sqkm	Male Lit-94.16, Fem Lit-84.27, Popu density – 12458/sqkm	Male Lit-96.43, Fem Lit-90.95, Popu density – 10613/sqkm	Male Lit-95.41, Fem Lit-85.08, Popu density-6343/sqkm
Change and Innovation (Culture, Environment)	Oldest city in Punjab, Colonial churches, Religious important Gurudwara, Region’s headquarters for newspapers, national television, radio station, Punjabi singers, sports, army, entertainment	Aligarh fort, Dor fortress, Numaish, Mosques and Temples, Middle portion of Doab (Ganges and Yamuna), Ramlila, Nautanki, Brijwood, Krishnaleela	Coastal city, avg. elevation as Sea level, backwaters, Seawall, Design centric city, Auroville, Aurobindo ashram, Smart grid inaugurated here, energy conscious, influence of French culture, colonial ambiance, beach culture, Ancient temples	Coastal city, lying between Arabian sea and Western ghats, backwaters of Netravati and Gurupura rivers, demographically diverse with several languages, rolling hills, city names after goddess Mangaladevi, known as a blessed land, friendly relations with Portuguese, diverse with populations of Hindu, Mulsim, Christian, Classical dance forms, Yakshagana, Karadi Vesha dance, Brahmins most famous festivals, annual catholic procession, Nativity	Rolling hills, city of lakes, historically important for Rajputs, large Jain community, famous and renowned Krishna and shiv temples, palaces and forts, proud rajput culture, folk dances, rich tribal culture, miniature paintings, west zone cultural centre, festivals such as gangaur and shilpagram to celebrate culture and traditons, fairs regular fair where city comes together and celebrate,

				fest, Jain fests, Ancient rituals commonly practiced which indicate giving thanks to God- dev. cultural roots	NGO Capital of the country
Economic impact (Economy)	Highly industrialised centre of commercial activity, hub of Sports goods manufacture, provides goods like glass and furniture	Agricultural trade centre, Lock industry, brass hardware-sculpture, zinc die casting,	Farming for cash crops, Hidesign and quite a few design centric firms, popular tourist destination	Port city, handles 75% of India's Coffee and Cashew exports, leading commercial, industrial, educational, healthcare and petrochemical hub, flourishing trading economy, one of the largest SEZ of India, industrial harbour, developed Economic conditions	Tourism, agriculture, mining, metal and mineral industries, handicrafts, handlooms, tourism, hospitality sector (world's most renowned and best luxury hotels) , world's second largest zinc producer
Leadership	Jalandhar Municipal Corporation, Jalandhar Development Authority	Aligarh Municipal Corporation, Aligarh Development Authority	Pondicherry municipality, Puducherry Urban Development Agency	Administrative headquarters of Dakshin Kannada, Mangalore city corporations,	Municipal Corporation, UIT Udaipur,

3. MODERN CITIES & URBAN ASSETS

Modern cities are a wealth of resources, which are more accessible than ever before and hence most vulnerable to exploitation. Therefore, a first step towards their preservation and strategic utilisation would be their identification.

Assets can be classified for identification under five major heads: Physical, Social, Cultural, Economic and Environmental assets. Each category of assets can serve as a driver for each stage of urbanisation, resulting in a **comprehensive urban framework of analysis as illustrated in Table 2.**

Table 2 also indicates a clear way forward for cities, to enrich their assets in order to complement and nurture their stages of urban development. Asset enrichment would essentially include improving physical capital, multiplying social capital, enhancing cultural capital, strengthening economic capital, and nurturing environmental capital.

Application of the urban framework of analysis to the city of Udaipur in

Table 3, illustrates the identification of and need to enrich specific assets in order to transform into a sustainable city.

4. TOWARDS A CULTURE OF SUSTAINABILITY

As exemplified for the city of Udaipur, the framework can be dynamically used to derive a city or even sector-specific roadmap for sustainable urban development of diverse cities. Consequently, a distinct set of recommendations can be prescribed for each stage of urbanization, giving clear signals to every segment of the community to contribute as a whole.

Above all, the framework provides a foundation to derive an **exhaustive set of indicators which together represent a culture of sustainability in a city. See Table 4.**

Table 2: Asset Overlay on the Five Stages of Urbanisation- The Urban Framework for Analysis

	Physical	Social	Cultural	Economic	Environmental
Growth (Infrastructure)	<ul style="list-style-type: none"> ▪ Provision of basic infrastructure - Water & sanitation - Solid waste management - Road connectivity - Buildings & housing - Land-use planning 	<ul style="list-style-type: none"> ▪ Combat spatial exclusion with sensitive housing designs/ housing for all ▪ Optimum preventive health care facilities ▪ Access to education ▪ Elderly and Child friendly city planning & development Family friendly social centres for ethnographic development 	<ul style="list-style-type: none"> ▪ Identification of all city heritage sites/practices/art forms ▪ Provision of adequate infrastructure to cater to their additional needs 	<ul style="list-style-type: none"> ▪ Infrastructure facilities to be economic and competitive ▪ Provision of infrastructure for traditional resource base for economic development 	<ul style="list-style-type: none"> ▪ Introduction of eco-friendly and energy efficient infrastructure – housing, transport and services to ensure preservation of: <ul style="list-style-type: none"> - Clean Air - Clean Water - Water bodies - Green belts - Biodiversity
Consumption (Demography)	<ul style="list-style-type: none"> ▪ Set up of Water harvesting systems ▪ Waste segregation/ 	<ul style="list-style-type: none"> ▪ Increased social events for 	<ul style="list-style-type: none"> ▪ Interaction among urban locales and surrounding rural 	<ul style="list-style-type: none"> ▪ Study of Consumption patterns for 	<ul style="list-style-type: none"> ▪ Creation of attractive open public spaces

	<p>decomposition of waste at source</p> <ul style="list-style-type: none"> ▪ Provision of public transport ▪ Disinclination towards urban sprawls; focus on zonal development 	<p>community interaction and entertainment.</p> <ul style="list-style-type: none"> ▪ Clean/ green city drives to be spearheaded by citizens ▪ Shared infrastructure for water harvesting/waste management/urban farming 	<p>population for promoting balanced and equitable territorial development, Promotion of social and inter-cultural dialogue</p>	<p>development of localised sector for the requirements</p>	<p>centred around natural landmarks of the city</p> <ul style="list-style-type: none"> ▪ Recognition of city consumption and mobility patterns to encourage preservation of identified resources
Change and Innovation (Culture)	<ul style="list-style-type: none"> ▪ Technology innovations: Fitment of water meters, leak detectors, waste to energy techniques ▪ Innovations in transport sector: last mile connectivity/ transport services, transit oriented development ▪ Design of GRIHA rated 	<ul style="list-style-type: none"> ▪ Social and ethnic diversity to be leveraged as source of collaboration, social justice, cohesion and balance ▪ Promotion and safeguard of Assets contributing to active social life 	<ul style="list-style-type: none"> ▪ Foresight through study of history and heritage; managing transitions, overcoming conflicts and contradictions ▪ Inculcation of technology in vernacular knowledge 	<ul style="list-style-type: none"> ▪ Cost efficient, innovative systems for the Needs of City infrastructure ▪ Promotion of local X factor to lead towards economic boom ▪ Forging partnerships with other cities of 	<ul style="list-style-type: none"> ▪ Innovative measures to safeguard environment and incorporate sustainability in daily lifestyle ▪ High uptake of eco-efficiency, local green products, efficient

	<p>buildings</p> <ul style="list-style-type: none"> ▪ Master planning through GIS and real time simulations 		<ul style="list-style-type: none"> ▪ Local residents to identify with the urban environment 	<p>similar typology/ historic evolution</p>	<p>city-specific energy management plan</p>
<p>Economic Impact (Economy)</p>	<ul style="list-style-type: none"> ▪ Strategic development of infrastructure for greater economic gains with limited deployment/ availability of resources. ▪ Mixed land use for holistic/ decentralised development of city 	<ul style="list-style-type: none"> ▪ Inclusive economy sustaining more jobs and high quality of life through development of urban local economies; Companies to be service oriented not product oriented (eg. Focus on transportation (service) not cars (product)) 	<ul style="list-style-type: none"> ▪ Promotion of local culture, arts and crafts, traditional and vernacular production systems ▪ Community cohesive business models for development of new SMEs utilising local skills 	<ul style="list-style-type: none"> ▪ Cities to work across sectors and not mono-sectoral; Promotion of greener local economy ▪ Participation of private sector in public infrastructure provision. ▪ PPP model/ Innovations in funding 	<ul style="list-style-type: none"> ▪ Industries to respect and complement the environmental assets of the city ▪ Earmarked green funds for investment in eco-friendly projects
<p>Leadership (Governance)</p>	<ul style="list-style-type: none"> ▪ Ensure uninterrupted services for <i>growth</i>; Develop performance monitoring protocol (municipal services, 	<ul style="list-style-type: none"> ▪ Integration of formal government structures with informal systems, thus incorporating 	<ul style="list-style-type: none"> ▪ Release of mandate and developmental regulations for preservation of heritage and 	<ul style="list-style-type: none"> ▪ Horizontal and vertical coordination with all governance levels to promote 	<ul style="list-style-type: none"> ▪ Holistic approach to environmental preservation rather than concentrated efforts towards

	<p>energy, air quality, GHGs)</p> <ul style="list-style-type: none"> ▪ Awareness campaigns for desired <i>consumption</i> practices. ▪ Policy incentives for development of priority infrastructure ▪ Enforcement of green building norms, affordable and efficient public transport for all, pedestrian infrastructure 	<p>public opinion</p> <ul style="list-style-type: none"> ▪ Empowerment of citizens through new governance modes, robust feedback mechanisms/ e-governance for monitoring and data collection ▪ Provision of smart citizen credits to encourage and applaud green lifestyle 	<p>indigenous practices</p> <ul style="list-style-type: none"> ▪ Traditional city centre to be adequately supplemented 	<p>justifiable tax and other allied measures</p> <ul style="list-style-type: none"> ▪ Attract engines of economic growth; Secure funding for vernacular micro-enterprises and promotion of entrepreneurship ▪ Green accounting to reflect budget spend on green projects 	<p>CO2 reduction</p> <ul style="list-style-type: none"> ▪ Enforcement of high density development norms for minimised land consumption, recycling of land and compact city planning, ▪ Track daily energy consumption on services provided by ULBs
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Table 3: Application of the Urban Framework for Analysis to Udaipur city

UDAIPUR	Physical	Social	Cultural	Economic	Environmental
Growth (Infrastructure)	<p>City level water supply system needs overhaul.</p> <p>Sewerage system is yet to be made.</p> <p>Public transport facilities need to be introduced.</p>	<p>Housing requirements of the tribal population need to be satisfied.</p> <p>Hospital facilities need to be decentralised from the CBD area.</p> <p>City administration is focussed towards education.</p>	<p>Being the NGO Capital of the country, Inventory of the heritage sites/ practices/ art forms is available, but appropriate patrons to safeguard them are missing.</p> <p>Heritage needs to be publicized.</p>	<p>Besides Mining and Hospitality, economic opportunities such as micro industries need to be established with available resources, for the urban population to plan for growth within the city.</p>	<p>Tourism brings with it, a gamut issues and complications.</p> <p>Sensitization towards eco-friendly and energy efficient infrastructure needs to be carried out.</p> <p>City landfill needs better management.</p>
Consumption (Demography)	<p>Traditionally existing system of water harvesting, with Baolis need to be revived.</p> <p>Infrastructure for Waste segregation at source needs to be created.</p> <p>Implementation of Door to door waste collection is in final</p>	<p>City is conscious of cleanliness.</p> <p>Sensitivity towards water management and biodiversity needs to be inculcated.</p> <p>Public level events for raising awareness need to be organised.</p>	<p>The existing Class system needs to be expunged. The dialogue between Rajput Bannas, Marwari merchants and Tribal farmers needs to be encouraged.</p> <p>Facilities need to be created in areas easily accessible by all (i.e. South city) to boost</p>	<p>Farming is still practiced using traditional means in small individual parcels of land in decentralised clusters leading to low outputs; similarly the traditional artisans and craftsmen need to be centralised.</p>	<p>Lakes are the most important reserves and resource of the city.</p> <p>However, in absence of organised solid waste management network the pollution accrues every year beyond control. This work needs to be taken up on top priority and sewerage</p>

	stages.		assimilation.		system needs to be developed.
Change and Innovation (Culture)	Being in the dark zone, water is already scarce in the city, efficient water meters and leak detectors in public supply line need to be placed. City public transport facilities are poor; Innovations in public commute need to be adopted	Spaces in the old city are losing their character in the race of urbanization; ethnic diversity needs to be appreciated with efforts on collaborative discussions for better understanding, cohesion and balance.	Citizens need to be made aware of the importance of the heritage in the city such that they take pride in it and begin to identify themselves with it. Apart from Vernacular Arts and Crafts, heritage structures like Mahasatya need to be identified and a plan for revival needs to be prepared with city as the prime stakeholder.	Stone craft, leather work, wood work, brass work, cloth work etc. need to be centralised and integrated into the city economic plan. Tourism needs to be supplemented with micro-industries as the major economic segment and be suitably supported and promoted.	Traditional utility products (inherently organic and eco-friendly) are being replaced with factory manufactured products. As with city cleanliness, residents need to take pride in indigenous goods reflecting the city's self-sustainability.
Economic Impact	Economic advisors should be involved in redrafting city level policies with due consideration of resources available	Awareness regarding schemes for development of micro-industries needs to be spread across all far reaching areas of the	Local schools and learning centres need to be developed for exchange, study and encouragement of vernacular arts, crafts	This city needs to work across sectors, with focus on inclusion of small sectors, not only mining and hospitality.	The industries need to be sensitive towards the environment. Eg. Marble dust from the processing plants can be utilized in place of being

	with the city.	city to ensure inclusive economic sustainability.	and knowledge systems.	PPP model needs to be applied for varying projects.	dumped at city landfills; Hotels and restaurants can use waste food for biogas preparation.
Leadership Governance	<p>Municipal Corporation needs to create adequate infrastructure for waste management and uninterrupted water supply.</p> <p>City level bio-gas plant needs to be developed.</p> <p>Collector office can be a pedestrianized circuit within the city which is gradually expanded to promote cycling routes.</p>	<p>A platform can be created to encourage interaction between Government administrators, NGOs and citizens. UIT has already started to work on e-publishing their records for public information. The different wards/colonies can be mapped for their consumption habits to allot citizen credits</p>	<p>UIT needs to work on development norms for design of green and sustainable buildings.</p> <p>Traditional & indigenous practices of water conservation need to be publicised and reinforced.</p> <p>City administration needs to undertake preservation of all heritage structures and assign a separate task force for the purpose</p>	<p>The industries need to share their green balance sheets, explicitly indicating their usage of ecological infrastructure.</p> <p>City administration can introduce specific taxes on unjustified use of resources.</p> <p>Policies for micro financing need to be shared widely with the city.</p>	<p>Concentrated efforts are required towards biodiversity protection rather than a singular focus on controlling carbon release.</p> <p>This needs to be complemented with high density development norms and impact assessment of any new development through regular monitoring.</p>

Table 4: Set of Indicators Representing a Culture of Sustainability in Cities

	Physical	Social	Cultural	Economic	Environmental
Growth (Infrastructure)	<ul style="list-style-type: none"> ▪ Coverage of basic services 	<ul style="list-style-type: none"> ▪ Social equity ▪ Quality of health and education ▪ Spatial composition 	<ul style="list-style-type: none"> ▪ Recognition of heritage sites/ practices ▪ Adequacy of heritage infrastructure 	<ul style="list-style-type: none"> ▪ Adequacy of infrastructure to sustain local resource base 	<ul style="list-style-type: none"> ▪ Quality of air, water and other natural resources
Consumption (Demography)	<ul style="list-style-type: none"> ▪ Efficiency of resource utilisation (need vs consumption) 	<ul style="list-style-type: none"> ▪ Extent/ strength of community interaction: events, shared resources, civil society 	<ul style="list-style-type: none"> ▪ Scope for inter-cultural dialogue/ 	<ul style="list-style-type: none"> ▪ Framework for establishment and assessment of consumption patterns 	<ul style="list-style-type: none"> ▪ Significance of local natural landmarks
Change & Innovation (Culture)	<ul style="list-style-type: none"> ▪ Innovations in infrastructure provision 	<ul style="list-style-type: none"> ▪ Collaboration among different social segments 	<ul style="list-style-type: none"> ▪ Implementation of vernacular knowledge in modern lifestyle ▪ Sense of place 	<ul style="list-style-type: none"> ▪ City X factor ▪ Implementation of renewables/ energy efficiency measures 	<ul style="list-style-type: none"> ▪ City-specific energy management plan
Economic Impact (Economy)	<ul style="list-style-type: none"> ▪ Economically strategic infrastructure planning ▪ Extent of mixed land use 	<ul style="list-style-type: none"> ▪ Inclusive economy 	<ul style="list-style-type: none"> ▪ Range and success of SMEs utilising local skills 	<ul style="list-style-type: none"> ▪ Cross sectoral industrial presence/ ▪ Innovations in attracting funds 	<ul style="list-style-type: none"> ▪ Earmarked funds for green investments

				<ul style="list-style-type: none"> ▪ Alignment with international standards 	
Leadership (Governance)	<ul style="list-style-type: none"> ▪ Performance monitoring tools ▪ Awareness campaigns and policy incentives for green infrastructure development 	<ul style="list-style-type: none"> ▪ Integration of formal and informal systems/authorities ▪ Provision(s) for citizen empowerment 	<ul style="list-style-type: none"> ▪ Mandate and for heritage preservation 	<ul style="list-style-type: none"> ▪ Incentives for vernacular micro-enterprises and ▪ Green accounting 	<ul style="list-style-type: none"> ▪ Policies for environment/natural resource preservation

5. CONCLUSION

The paper is aimed at aligning all our cities with a sustainably conscious development model. It is critical to deliver this change in a manner that reflects the inherent growth principles of the region and its community, in order to sustain this transformation in the future.

The framework of analysis is designed to identify and build on the strengths of a city such that each stage of urban development is reinforced by one another.

It is also hoped that the indicators derived from the framework will be used in future, to generate more ideas, implementation models and national missions which promote a culture of sustainability in our communities, henceforth.