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AGENCIES AND ACRONYMS

ADB – Asian Development Bank

CCD – City cluster development

CODI - Community Organization Development Institute

CSR – Corporate Social Responsibility

BESCOM – Bangalore Electric Supply Company

BWSSB – Bangalore Water Supply and Sewerage Board

HDB - Housing Development Board

IIHS - Indian Institute of Human Settlements

JNNURM - Jawaharlal Nehru National Urban Renewal Mission

KIADB - Karnataka Industrial Areas Development Board

KUIDFC – Karnataka Urban Infrastructure Development and Finance Corporation

NULM - National Urban Livelihoods Mission

NCEUS - National Commission for Enterprises in the Unorganized Sector

NTADCL – New Tirupur Area Development Corporation Limited

SMEs – Small and Medium Enterprises

TEA - Tirupur Exporters Association

TEDA - Tianjin Economic Technological Development Area

ULBs – Urban Local Bodies

UNIDO – United Nations Industrial Development Organization
India’s cities are facing a crucial moment in planning. In the context of rapid urbanization and industrial growth, the national government is increasingly pursuing an agenda of economic growth and development. The 74th Amendment of the Constitution, as well as the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), the National Urban Livelihoods Mission (NULM), the recommendations of the National Commission for Enterprises in the Unorganized Sector (NCEUS), and other government schemes have emphasized the importance of managing development at an urban and regional scale.

As KUIDFC is well aware, economic growth in Bangalore has not necessarily resulted in development that is efficient and equitable for city residents or industry. The rapid population increase in the city and the increasing presence of new firms over the past few decades has put a strain on urban infrastructure and resources that is sensed by all. These issues, ironically, are a result of one of Bangalore’s greatest successes: booming growth rates and high employment, which result in economic opportunities that attract firms and residents into the city.
We will make two specific recommendations:

(a) Connect physical infrastructure to institutional compacts that increase KUIDFC’s role in fostering transparency and best practices in planning.

(b) Explicitly include the “unorganized” sector economy in planning for clusters and for Bangalore proper.

To plan for a sustainable and equitable future for Bangl珲reans that takes advantage of the city’s economic growth, KUIDFC must consider more than just the physical and spatial components of planning. It must also consider the impacts of growth on different populations within the city based on their socioeconomic status, gender, and employment.

In its role as an infrastructure development and finance corporation, KUIDFC has viewed “urban infrastructure” as physical structures; highways, transit connections, ports, and pipelines. The vibrancy of cities, however, also depends on the social and institutional relationships – the power and politics – rooted within the built environment. KUIDFC has not traditionally seen its role as enhancing and encouraging social and institutional relationships, but any successful planning process must take this into account.

KUIDFC should also take into account the role of the unorganized economy in planning for CCD. Currently, 93% of India’s workforce is employed in...
planning is unsustainable and will result in difficulties and deficiencies in project implementation for KUIDFC, and potentially, directly contribute to Bangalore’s inequitable growth. Physical infrastructure, if not embedded within the political context and employment landscape of Bangalore, will not lead to growth that is adaptable and equitable for the city’s firms and residents.

Thus, we propose that KUIDFC redefine “urban infrastructure” as the interplay of the physical, social, political, and institutional structures within a city. This understanding can be incorporated into the CCD model through social compacts between state, industry, and society to better plan for a more equitable future for Bangalore. A redefinition of urban infrastructure considers the built environment and how residents and industry interact with it over time. It also allows all segments of society greater access to positive outcomes of the development that Bangalore is experiencing, and recognizes the impact of the currently unacknowledged unorganized economy on the city’s growth and vibrancy.

In order to incorporate this new definition into the current progress on CCD, we propose social compacts. These compacts serve as negotiating mechanisms between the many parties involved in planning. While compacts can take many forms, their purpose is to enforce relationships and responsibilities amongst parties. To ensure the ultimate effectiveness of the CCD model, these agreements are necessary. We will address the specifics of social compacts more directly in our recommendations.
The physical impact of IT/BPO industry on Bangalore
City Cluster Development, as KUIDFC is aware, is one form of spatial deconcentration that is purported to solve the issues of rapid growth throughout Asia. In order to comprehensively understand clustering as a spatial tool, we examined other forms of deconcentration, including growth boundaries and infill models, to identify best practices in planning and implementation for clusters. We looked at physical characteristics such as size, scale, and composition, as well as institutional arrangements, such as allocation of resources, and the involvement of political and community groups.

**Diagram of the different deconcentration models studied**
What we found was telling – despite the varying physical and spatial characteristics of cluster development, all the successful cases (including those implemented through the ADB’s CCD model) featured successful institutional relationships and agreements between firms, government, and people, as well as explicit incorporation of the unorganized sector and its employees. This occurred in all political contexts – from strong national leadership, to weaker central governments and democracies. In cities where elements of cluster development failed, there was typically a corresponding lack of or breakdown in institutional agreements, or the cluster failed to consider the impact of residents who worked in jobs classified as “unorganized.”

Through this comparative analysis, we have realized that City Cluster Development can be a powerful tool, but we are convinced that it will not bring successful, equitable, and sustainable growth for Bangalore on its own. In order to successfully plan for CCD, KUIDFC should examine the institutional landscape of Bangalore and the relationships in which it engages. This will lead to better chances of success in long-term planning and implementation of infrastructure development that adapts to the changing dynamics of the city. In incorporating our proposed compacts into the CCD model, KUIDFC can play a leading role in establishing best practices for planning in India’s new urban economy.
In India, most existing industrial developments were established through a one-way transfer of resources from government agencies to industries. Through incentives such as tax abatements and land subsidies, government agencies such as the Karnataka Industrial Areas Development Board (KIADB) attracted firms to specific pre-selected sites. Throughout this process, it has been common for Urban Local Bodies (ULBs), unorganized economy employees, residents’ associations, and other representatives of firms and society to have little or no bargaining power or input into the planning process. The government-industry dynamic does not address widespread benefits or issues of equity, and is in contradiction to the constitutional requirements established in the 74th Amendment.
A similar one-way relationship exists between industries and society. Given the size of industries in Bangalore, where they locate has a significant impact on their surroundings and social fabric of places. This process currently does not accommodate either industry input or citizen feedback. It is problematic for society as a whole when specific local needs are not addressed in large-scale development planning.

Government agencies in Bangalore currently suffer from a poor reputation and a lack of public confidence in their ability to solve societal challenges. This perception is consistent throughout India. KUIDFC, to its credit, is viewed as a competent and effective agency. As a parastatal, however, it is perceived to lack a certain amount of transparency and accountability to the public in its decision-making processes.

Our recommendations take advantage of KUIDFC’s strengths, and position it to address these perceived weaknesses. There is an opportunity for KUIDFC to be a crucial agenda-setter in Bangalore’s planning processes. As it undertakes City Cluster Development, KUIDFC can engage regularly with various stakeholders and embed their needs into its operations. It can show itself to be a forward thinking and progressive agency, and could serve as a model for a new form of development planning. Our recommendations will allow KUIDFC to fundamentally transform how planning is done in Bangalore, the state of Karnataka and India.

For KUIDFC to effectively implement City Cluster Development, it is important to take a proactive role in ensuring a back-and-forth relationship between all stakeholders in a given area. These relationships can take a variety of forms, as we will show in the following section. KUIDFC must ensure strong bilateral relationships between government agencies at various scales, particular industries, and both current and future residents of the areas in which they plan to intervene. In the following sections we will illustrate how these relationships can be shaped.

We propose the idea of social and institutional compacts. These compacts can take various forms: policy recommendations, contracts, meetings, and more. In essence, they are agreements between various groups that have a stake in the infrastructure projects KUIDFC will undertake. Through six concrete compact examples, we will demonstrate how KUIDFC can play a leading role in promoting and establishing relationships to better plan for sustainable growth and make a necessary connection between organized jobs and unorganized employment.
The six compacts we highlight are possible avenues for KUIDFC to engage in institutional relationships. They are divided into two categories: KUIDFC-Industry and KUIDFC-Society. Each category features compacts that are feasible and beneficial for KUIDFC, and that can be incorporated into current City Cluster Development processes.

These compacts are the result of a comprehensive study of comparable industrial clusters and cities that utilized the Asian Development Bank’s CCD model. A more detailed explanation of our methodology will be provided in later sections.
KUIDFC-Industry Compacts:

1. Industrial Reciprocal Benefits Compact
2. Industry Needs Compact
3. Land Banking Compact

KUIDFC-Society Compacts:

1. Capacity Building Compact
2. Local Meetings Compact
3. Citizen Reporting Compact

While certain compact proposals are can be implemented in the short-term, others require a change of perspective in long-term planning. The compacts we have highlighted are not necessarily exhaustive of all potential relationships. However, these particular compacts are highly beneficial for any successful City Cluster Development site, and allow KUIDFC to encourage equitable development in Bangalore.

Each of these compacts is followed by case study examples from other cities. The examples illustrate how compacts worked successfully elsewhere, or, in some instances, the consequences of not undertaking certain compacts. Each example highlights the important role of bilateral relationships throughout the City Cluster Development process – from initial planning stages through implementation.
In Karnataka, industrial policies focus on providing firms (particularly those that are export-oriented) with packages of incentives and subsidies in order to encourage economic growth. Current schemes aim to find spatially suitable locations for industry without considering neighborhood development and employment within each cluster. Present policies and planning for industrial growth in Bangalore prioritize industry needs and concerns, and rarely consider local impacts. In addition, urban planning schemes for industry clusters in Bangalore are disconnected from national and local planning priorities. A reciprocal arrangement is necessary to achieve greater livability for all residents and employees in Bangalore.

Given their enormous impact on the city, industries can and should play a role in contributing to society and attempting to alleviate the negative externalities of their presence. We suggest that KUIDFC encourage a mutually beneficial relationship by urging firms to participate in local community initiatives, and where possible, to connect more directly with state-led programs.

This compact creates reciprocity between the state and industry, allowing firms to contribute to local development, and simultaneously enhancing their reputation and connection to the surrounding community. This builds upon current trends in industry programming. For instance, in exchange for government subsidies, large-scale corporations

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2 (Amsden, A. H., 1989)
can become involved in community development by building health care centers, public schools, and job training centers, or by installing street lighting, sidewalks, and improved transit networks under Corporate Social Responsibility (CSR) programs. Firms can thus complement local development in a manner that is consistent with overarching planning priorities and schemes, either under municipal or state-led programs. KUIDFC, as an agenda-setting agency, can ensure that the projects in which firms engage take into account the different characteristics of each cluster, based on industry dynamics, organized and unorganized employment, and local needs and concerns.

Small and medium enterprises (SMEs) that are not at the scale to carry out extensive CSR programs can also play a role in contributing to local development. They can, for example, establish industry associations that link directly to local development. This type of relationship will create positive outcomes for both the cluster’s economic sustainability and for the livelihoods of residents and employees, which are inherently interrelated. This relationship is even more crucial given the fact that SMEs have a significant amount of unorganized employment. By encouraging SMEs to participate in local development in each cluster, there may be positive impacts on nearby communities and employment.

With this compact, KUIDFC can ensure its success in the field of planning by stepping outside of its existing mandate of project financing. The agency will also benefit by gaining assistance in infrastructure provision from firms that are engaged locally in each cluster, while simultaneously driving the growth agenda through planning schemes. Given the rate of Bangalore’s growth, local engagement in infrastructure provision and maintenance may benefit KUIDFC by ensuring long-term viability and relevance of each infrastructure project to the needs of the community and economy within which it is embedded.

This compact tackles many of Bangalore’s concerns with the impacts of industry growth and strained urban infrastructure. It allows government to share the responsibility of provision of services with industry – encouraging industry to invest in the community in which it is located. The compact also addresses firms’ potential quality of labor and operating costs by creating a cluster that is attractive to potential employees and delivering services on a scale that is both effective and efficient in the long term.

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3 (Oliveira, J. A. P., 2008)
4 (Report of The Task Force on MSME, 2010)
In Tirupur, India, the relationship between knitwear cluster firms and the government took a form similar to this compact. By the end of the 20th century, Tirupur’s water and sewerage infrastructure - two services critical to the knitwear industry - were aging and in disrepair. Knitwear firms collectively paid for and repaired the water and sewerage networks, for both their own factories and the entire community. These upgrades were implemented through a Special Purpose Vehicle, the New Tirupur Area Development Corporation Limited (NTADCL), which was promoted by the Tirupur Exporters Association (TEA). With the direction of UNIDO, TEA continued to engage in infrastructure provision over time by building schools and maintaining railroad stations and roads. TEA has also contributed to the construction of apparel parks and hostels for employees, resulting in increased productivity for industry and livability improvements for workers and residents.

CASE STUDY: TIRUPUR, INDIA

ISSUES ADDRESSED

- Governance Issues
- Growth Management
- Operating Cost
- Livability for Workers

Slum redevelopment project

School children at Chickpete
The BMRDA Structure Plan has identified several potential sites for targeted industrial cluster development. Each of these sites is associated with specific industries that BMRDA believes should be serve as anchors in each cluster. As KUIDFC has outlined, five of these sites are potential locations for City Cluster Development, utilizing the Asian Development Bank’s Mega-City Dominated Model.

Currently, Indian agencies identify sites and provide incentives (such as subsidized land, tax incentives, and basic infrastructure) to firms to relocate to these areas. However, this method is susceptible to failures of implementation if specific industry dynamics are not accounted for in planning cluster development. Because different industries have different needs and concerns for physical and social infrastructure, a lack of communication or understanding of industry dynamics could result in infrastructure development that is not optimal or adequate for the firms that the Structure Plan attempts to attract. This, in turn, perpetuates a gap in appropriate growth strategies in particular clusters.

**INDUSTRY NEEDS**

**ACTORS:**
- KUIDFC
- Department of Industry
- Industry Associations

**MECHANISM:**
- Collaborate with Firms
- Information Exchange

**OUTCOME:**
Understand industry needs and plan accordingly

**ACTORS:**
- KUIDFC
- Department of Industry
- Industry Associations

**MECHANISM:**
- Collaborate with Firms
- Information Exchange

**OUTCOME:**
Understand industry needs and plan accordingly
Through this compact, we propose that KUIDFC interact directly with industry associations and the Department of Industries in order to fully understand the specific needs of different industries, and thus plan industry clusters appropriately. Through a collaborative effort and an effective flow of information between KUIDFC and firms, the agency can better account for growth strategies, appropriate infrastructure provision, future needs, and potential issues in the clusters. The compact could utilize surveys or studies on specific industries (in partnership with the DOI or academic institutions) to gather information and utilize it in planning clusters.

This compact complements KUIDFC’s goal of managing unplanned growth in Bangalore and the newly formed clusters. By understanding the sector-specific dynamics of industry, KUIDFC will have the ability to proactively plan clusters that are appropriate given the needs and impacts of each industry. Through this compact, the agency will have the capacity to guide growth more effectively and account for the impacts of industries in a comprehensive regional vision. KUIDFC can thus play a crucial role in enhancing physical and economic planning for the greater Bangalore.
Brazil's four million small and medium enterprises accounted for 40% of GDP in 1996. Now, in the area surrounding Novo Hamburgo, there are nearly 25 small cities that comprise what is known as the Sinos Valley shoe cluster.

Faced with increased competition in the global market from Chinese shoemakers and others, Brazil's shoe-making industry was forced to adapt to global trends. The industry was able to become more competitive by decentralizing production and making specialization more flexible. The government promoted the establishment of industry associations, and engaged them in devising policy to benefit firms and employees, holding international fairs, and establishing training centers. These institutional relationships enabled producers to be competitive at an international level and promoted the flow of information between firms and government.
LAND BANKING

Currently, KIADB (the Karnataka Industrial Act Development Board) operates as a parastatal organization to acquire public and private land. This land is converted into industrial sites and is subsequently offered to firms at subsidized prices, with the goal of maintaining industry presence in Bangalore to encourage economic growth. KUIDFC collaborates with KIADB to prepare industrial sites before they are sold to firms by building out basic infrastructure such as roads, electricity lines, and water infrastructure. In this situation, firms gain valuable land complete with infrastructure, but the government has little opportunity to leverage benefits from the firm in both the short and long term. Additionally, KUIDFC and other government actors engaged in planning have no ability to oversee development and set priorities for growth once land is sold to firms.

1. ACTORS:
   - KUIDFC
   - KIADB

2. MECHANISM:
   - Land bank
   - Acquire Land & Create Fund
   - Lease Land

3. OUTCOME:
   Use land as an asset for long term planning
We instead propose that KUIDFC and KIADB collaborate to form a land bank in order to maintain agency over the development of the cluster. The land bank would act as a legal and financial mechanism for the state to purchase, develop, and lease land to firms in Bangalore. A share of the interest earned by the land banking process can be used for building and maintaining infrastructure in each cluster.

This compact would build capacity by providing KUIDFC and KIADB with a new source of revenue that is directly tied to infrastructure in each cluster. It would help KUIDFC to manage growth by allowing the agency to maintain control of long-term land-use decisions through a leasing period for firms.

This compact also addresses a common complaint from firms about the high cost of operating in Bangalore. For small and medium sized firms who want to expand but cannot afford to purchase land, leasing fully serviced land is an affordable option.

Land management in Bangalore traditionally occurs behind closed doors, allowing valuable government resources to be sold to private firms without public knowledge. In making the process of land provision more transparent, this compact will serve to improve the reputations of KIADB and KUIDFC. It will also allow KUIDFC to serve as the key actor in promoting more efficient and equitable plans for growth in each cluster.
Tianjin, China practices a similar method of aggregating and leasing land. The Tianjin Economic Technological Development Area (TEDA) established an office to manage land exploitation, tax collection, and the implementation of planning laws. TEDA executed several schemes to provide land for economic development. The various schemes allowed it to generate income from the land and provide appropriate upgrades over time. Income generated from land leasing is reinvested into improving existing infrastructures and developing new land, creating a positive cycle of acquiring and reclaiming land in China.
Currently, KUIDFC collaborates with certain Urban Local Bodies (ULBs) that it believes are most effective and capable of undertaking infrastructure projects. The 74th Amendment of the India Constitution seeks to develop and strengthen local operational capacity by devolving planning responsibilities to the ULBs.

We propose that KUIDFC further develop relationships with the ULBs in the form of funding mechanisms and project oversight. In this role, KUIDFC can push Urban Local Bodies to be more accountable to and representative of their local communities. The ULBs would be responsible for distributing funds directly to community residents within their respective boundaries. Direct funding would aid in improving urban infrastructure, thus increasing livability for firms, employees, and residents.

In order to maintain control of planning priorities and ensure proper distribution of funding, KUIDFC can establish specific project guidelines that ULBs must follow and report upon in order to verify that resources are utilized appropriately. ULBs would be responsible for approving, evaluating, and overseeing all projects utilizing this funding, and a pilot project could be established in order for each ULB to demonstrate that it is able to manage any funding it receives.

**CAPACITY BUILDING**

**ACTORS:**

- KUIDFC
- Urban Local Bodies
- Community Associations

**MECHANISM:**

- Funding mechanism

**OUTCOME:**

Understand Industry needs and plan accordingly
In order to ensure that the needs of employees and residents are met, community associations would be responsible for verifying community consent of proposed projects. Community associations could also be required to demonstrate an ability to manage resources. Following distribution of funds, associations would be required to issue reports about project development and remit any remaining funds to KUIDFC and their respective ULBs.

This compact would allow KUIDFC to increase capacity at a local level and ensure that community stakeholders have a role in long-term planning and maintenance of urban infrastructure. This increases the likelihood that projects will be successfully implemented over time, as the community would have a stake in successful outcomes. Establishing a financing and oversight relationship with ULBs would also allow KUIDFC to comply with India’s national agenda while maintaining agency in overall planning priorities.
In 2003, the Thai government established a target of improving housing, living and security of tenure for 300,000 households in Thai cities within five years. The government was challenged with providing support for community upgrading in a way that allowed underserved communities to lead the process and generate local partnerships. Through the Community Organization Development Institute (CODI) and the Baan Mankong (“Secure Housing”) program, the government channeled funds for infrastructure subsidies and housing loans directly to communities that planned and implemented improvements to their housing and basic services. Baan Mankong supported processes designed and managed by low-income housing dwellers and community organizations that supported them. Working with local governments, professionals, universities and NGOs in their cities, these groups conducted surveys and developed plans for upgrading. The CODI then channeled infrastructure subsidies and other funds directly to communities. Any community could receive funding, provided that it could demonstrate the capacity to manage resources, and ensure that the loans would be used to respond to particular needs of the group. This program reimagined methods to achieve large-scale development impacts by supporting community-driven processes in many urban centers which, in turn, had a large impact on a national scale.

CASE STUDY: BANGKOK, THAILAND

**ISSUES ADDRESSED**

- Governance Issues
- Accountability
- Local Participation

Bang Bua Canal Community Upgrading / Source: Design with the other 90%: CITIES
Currently, KUIDFC takes it upon itself to prioritize various infrastructure projects. Local stakeholders, ULBs, civic groups, and residents have no opportunity to engage in discussions about their communities, and have few formal mechanisms to offer feedback. The frustrations and concerns of these groups are wide ranging and problematic for KUIDFC as it engages in planning for clusters.

We propose that KUIDFC and other state agencies who participate in planning engage in community meetings in CCD areas. Agencies can identify certain negotiable aspects of cluster plans. Although certain aspects of plans developed for the clusters are fixed, there are components that are much more flexible and can be open from local input. KUIDFC can benefit from making these components are open to negotiation in local meetings, where stakeholders have an opportunity to negotiate and modify options.

Many public consultation processes are perceived to have failed to achieve their initial purposes, and are time-consuming and cumbersome. The agendas
of community meetings are often undefined or lack clarity about the outcomes of local input. By clearly identifying what components of plans are negotiable or amenable to change, this compact will augment KUIDFC’s plans, and will also enforce its authority and nodal role in bringing stakeholders together to plan for clusters. In addition, acquiring local input can be beneficial to KUIDFC as a requirement for project funding from the ADB and other international agencies. This will enhance KUIDFC’s reputation and role recognition as a forward-thinking and progressive agency that incorporates and adapts local concerns directly into the planning process.
In Singapore, the Housing Development Board (HDB) provides subsidized housing for 82% of Singaporeans. In the 1970s, the HDB realized that its administrative system had grown so large that it was perceived to be distant from residents. To address this challenge, it devolved certain estate management duties to Town Councils (local meetings in each community to arrive at decisions). Until then, estate management, including housing allocation, occurred through a centralized decision-making process. Town Councils aid Singaporeans to forge strong community spirit and identity, and take ownership of local projects. Such institutional changes allowed the HDB to be more flexible in addressing local needs and changing dynamics of the city. Since the 1980s, the Town Councils have driven progressive changes in rules and regulations regarding ownership and access to public housing. For instance, the councils made it possible for the HDB to introduce a 15-year upgrading plan, through which residents can individually elect to upgrade units and neighborhood amenities.

In order to provide adequate housing in Marikina City (a cluster outside of Manila, Philippines), the Marikina Settlement Office created community associations to monitor slum improvement projects. A two-part program of relocating squatters and rehabilitating the river has resulted in the effective development of privately owned land for the relocation of 10,000 squatter families previously occupying the riverbanks. It has also given security of land tenure to 13,000 squatter families. These re-settlement families are organized in the form of community associations and grassroots organizations that monitor and supervise the program. These groups hold regular meetings to come to agreements about land use and infrastructure issues. The Community Home Mortgage Program of the National Housing Authority provides financing for the purchase of real estate and construction of houses. The city government, through the Marikina Settlements Office, assists and guides people organizations to monitor the program.
KUIDFC serves as the nodal agency for financing infrastructure development projects in the state of Karnataka. Currently, government agencies rely on their own internal capacity and informal conversations to gather information about which infrastructure projects and maintenance upgrades are necessary. There is no formal avenue for other stakeholders to comment or provide information about infrastructure needs. Residents and civic groups often complain that agencies such as BWSSB and BESCOM do not have the capacity or ability to address citizen needs efficiently. Government agencies are often characterized to display a lack of knowledge or concern about the impact of growth on residents.

**ACTORS:**
- KUIDFC
- State Agency
- Civic Association
- Citizens

**MECHANISM:**
- Collect information from citizens
- E-governance platform

**OUTCOME:**
Enhance accountability in infrastructure provision
We propose that KUIDFC work with partners to establish an e-governance program in the form of a platform that invites citizens to anonymously report malfunctions and deficits of infrastructure services in their neighborhoods. Residents would be able to use mobile phone applications, internet websites, the postal service, or a walk-in site to file a report. Complaints could be received and compiled by KUIDFC or a partner organization and sent to the appropriate agency for follow up. The incorporation of third party organizations could serve to build trust between community members and government, and also incorporate current complaints and platforms by civic groups directly into the planning process. Copies of reports could also be sent to Urban Local Bodies to address small scale concerns and comply with the 74th Amendment.

This compact serves as a tool that allows citizens to be the eyes on the street, making the provision of water, sewerage, electricity, and other infrastructure easier and more transparent. It would allow KUIDFC and corresponding infrastructure agencies to gain a more complete image of the deficits and lifespan of urban infrastructure. Thus, the state would be able to plan more effectively, incorporate the concerns of residents and civic groups, and enhance its reputation by directly responding to local needs. These factors all enhance KUIDFC’s ability to plan and maintain infrastructure in the long-term, and to avoid potential failures of implementation.
In 2009, Singapore established an e-governance program in an effort to improve engagement with its citizens and tackle challenges at the local level. The government utilized citizens’ committees to oversee the collection of complaints, and instituted a minimum time requirement by which reported complaints were required to be addressed. In addition to compiling and filing complaints, citizen committees began to draft policy recommendations that were forwarded to the State Legislature – a progressive effort to alleviate longstanding issues in a systematic and procedural manner, in order to better plan for Singapore’s future.

CASE STUDY: SINGAPORE

A street in Peenya Industrial Estate

ISSUES ADDRESSED

- Growth Management
- Livability for Workers
- Accountability
- Local Participation

Singapore E-Governance website
05. FINDINGS AND COMPARATIVE ANALYSIS
These recommendations are the result of a great deal of research and analysis on Bangalore and other cities. We employed a variety of methods, including a literature review and data collection through in-depth interviews, site documentation, and comparative best and worst practice case studies. We also undertook data analysis through employment multipliers, ethnographic sketches, and sector-specific and stakeholder specific analysis. We analyzed current issues in planning for Bangalore’s growth, as well as the potential of City Cluster Development Model to alleviate the city’s challenges.

We conducted 24 in-depth interviews with various actors in Bangalore. We participated in discussions with KUIDFC executives, including Ms. Monica Kashkari, Mr. Harsh Gupta and others, several times. In addition, we met with a wide variety of politicians and government agencies, IT and garment firms, civic associations, academic researchers, industrial associations, planning practitioners, and technical experts in Bangalore. Our studio also partnered with the Indian Institute of Human Settlements (IIHS), which provided insight and guidance during our visit to Bangalore.
INDUSTRY DYNAMICS

Firms have many business-driven reasons for deciding to locate in certain places. To attract firms to identified cluster sites and to better plan for their presence, it is important to understand what drives firms to choose areas, and which parts of their business models depend upon location-based issues, such as the cost of land, distance from raw materials, and proximity to labor.

Employees of firms also have a unique set of requirements when choosing where to locate. In addition to the availability of jobs, employees evaluate many other factors that are crucial to their livelihoods, such as access to services, commuting time and cost of housing. We have identified five key factors that were highlighted repeatedly through our research of employment dynamics in Bangalore. These include:

1. Access to Basic Amenities (i.e. Water, Electricity, Waste Management, etc.)
2. Mobility
3. Housing
4. Educational Institutions
5. Health Institutions

GARMENT INDUSTRY

- Manufacturing
- Lower Wages
- Lower Skill
- Female Dominated
- Clustered

IT INDUSTRY

- Service
- Higher Wages
- Higher Skill
- Male Dominated
- Influential

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<th>Garment Industry</th>
<th>IT Industry</th>
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<td>2,600+ Units</td>
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<td>540,000 Workers</td>
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<td>30% Country’s Apparel Exports</td>
<td>36% Country’s IT Exports</td>
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WORKERS

ACCESS TO SERVICES

MOBILITY

EDUCATIONAL INSTITUTIONS

HEALTH INSTITUTIONS

HOUSING

IT/BPO INDUSTRY & GARMENT INDUSTRY

WORKERS

ACCESS TO SERVICES

MOBILITY

EDUCATIONAL INSTITUTIONS

HEALTH INSTITUTIONS

HOUSING

IT/BPO INDUSTRY & GARMENT INDUSTRY
Employment dynamics are naturally sector-specific. Each industry has specific labor requirements, which in turn, creates unique amenity requirements for the industrial cluster. Additionally, development of industrial clusters is further complicated because clusters must be able to accommodate indirect jobs that industries create. These indirect jobs, many of which are in the unorganized sector, are also industry-specific.

In order to better understand the complexity and nuances of specific industries, we chose to examine the garment and IT/BPO industries in more depth. Both industries have great significance for Bangalore’s identity and its economy today.

These industries also differ greatly in characteristics of employment and physical location. The garment industry in Bangalore draws upon a labor pool that is low wage, fairly low skill, and primarily female dominated. Spatially, garment firms tend to cluster close to one another and are not very spread out across the city. The IT industry, on the other hand, features a labor pool that receives high wages, has high skill levels, and is currently male dominated (although female employees are continuing to grow in number). IT firms also tend to cluster in industrial parks, but overall do not cluster as closely as garment firms and are much more spread out across Bangalore. The IT industry possesses significant amount of political influence, as government offers many incentives and subsidies to attract IT firms into the city. The garment industry, on the other hand, does not have nearly the same amount of influence in political considerations.
LESSONS FROM INFORMATION TECHNOLOGY & BUSINESS PROCESS OUTSOURCING INDUSTRIES

The IT and BPO industries require a well-educated, English-speaking labor pool. Firms consider factors related to their business models, but also the needs of employees, as labor and personnel costs are their largest expense. In order to maintain profitable operations and attract appropriate employees, these considerations are crucial.

EDUCATION INSTITUTIONS
Requires educated labor pool

MOBILITY FROM HOME TO WORK
Establish private taxi services to address limitations in existing transport means

LEISURE & BASIC AMENITIES
Long operational hours require provision of food, retail, services, etc.

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5 Our analysis of the IT industry includes three components: 1) interviews/tour of a representative IT firm in Bangalore, 2) interviews/tour of a representative BPO firm in Bangalore and 3) literature reviews. Both representative firms are large and well established.
Labor-related location factors include:
1. Educational Institutions - Both IT and BPO firms indicate that the number and quality of universities and institutions of higher learning make Bangalore a highly attractive place to locate. BPO firms also express that their employees typically view a BPO job as a launching pad to better employment, perhaps in the IT sector.
2. Housing – IT employees require affordable housing. As a result of relatively high incomes, employees are willing to trade travel time to work in exchange for better quality housing. There is also a multitude of household structures that serve employees in the IT and BPO industries. This has a substantial effect on transportation and traffic in the city, as employees travel long distances to arrive at work.
3. Basic Infrastructure- Access to services such as water and electricity is not a significant issue for the IT sector, as employees’ income allows them the freedom to pay for private resources. However, these services are provided at a higher cost than if supplied by the municipal system.
4. Mobility– Timing of employees’ arrival is critical to firm productivity in these sectors, especially for BPO. Firms provide taxis or shuttle transportation to ensure their employees arrive to work on schedule, as existing modes of transportation are unreliable for a factor so crucial to firm's success.
5. Urban Lifestyle Amenities - As employees of IT firms have a certain amount of disposable income, they seek recreational and leisure facilities at various hours.

Non-labor related factors IT/BPO firms consider in deciding where to locate include:
1. Government Land Incentives
2. Central Location and Prestige of Area
3. Agglomeration Benefits of Co-Locating with Other Firms

Because IT & BPO industries are viewed to create highly desirable impacts in the form of economic growth, there are currently many incentives that offer land to these firms at below market costs. This often takes the form of land subsidies or land tax exemptions.
LESSONS FROM THE GARMENT INDUSTRY

The garment industry is a low-wage, low-skill industry that requires a large labor pool. There is also a great deal of turnover in the industry. Firms require access to a constant supply of new labor, and thus must take into account the presence and needs of their employees when deciding where to locate.

TRAINING CENTERS
Requires large, replenishing labor pool

HOUSING
Affordable housing needs to be in close proximity to factory

WORKPLACE SAFETY
Large proportion of young, female workers requires safe working conditions

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Our analysis of the garment industry includes three components: 1) interviews/tour of a representative garment firm in Bangalore, 2) interviews with garment employees, and 3) literature reviews. The representative garment firm is a large, well-established firm that operates mainly in ready-made garments for exports. Employees we spoke to were also from this firm.
Non-labor related factors of garment firms in deciding where to locate include:
1. Affordability of Land - Garment firms have historically located on the outskirts or periphery of the city, where land costs are relatively more affordable.
2. Basic Infrastructure Provision – The availability of appropriate electricity and water connections are important during initial site selection and survey
3. Location of Other Garment Firms - Co-location of garment firms is beneficial to the industry as a whole, and individual firms seek to take advantage of these benefits.

Labor-related location factors include:
1. Availability of Jobs – Employees look for employment in firms that provide them a stable and reliable income, and also seek out employment opportunities for family in the vicinity of their homes and workplaces.
2. Affordable Housing– As many garment workers walk or take public buses to work, affordable housing located in proximity to firms allows them the ability to save time and money, as well as undertake familial responsibilities in close proximity to both home and work. Because there is a large population of females in this industry, younger employees or those from outside of Bangalore may seek shared housing. Families may also seek shared living arrangements in order to save costs.
3. Training Facilities – Training programs and facilities located around factories provide resources to educate employees and improve production efficiency.
4. Educational Institutions– For garment employees, access to educational institutions and crèches for their children are a high priority, particularly for the female workforce.
5. Health Institutions and Services - Access to health institutions and maternal care services are particularly important for employees, many of whom are caring for elderly populations and have little ability to seek regular or more costly medical care for their families
6. Access to Infrastructure– Public water, electricity, and waste management systems are important to garment sector employees, as they often possess limited resources to seek out private provision of these services.
7. Safety - Female employees require a safe and secure workplace environment free of discrimination or harassment.
8. Mobility - Garment workers may walk for as long as one hour to and from work each day, and many of them utilize city buses. Safe and efficient public transportation and walkways are essential to the feasibility and ease of their daily commutes.
EMPLOYMENT IN BANGALORE

Each employee of an industry relies on a number of workers in other industries and support services in order to maintain a typical livelihood. As previously mentioned, this ancillary employment often consists of unorganized sector workers. Thus, in planning for organized industry jobs, one must also plan for additional employment. The nature of additional employment often depends on the specific types of support services upon which organized workers rely. Therefore, the types of unorganized employment in each new city cluster development will be specific to the characteristics of the organized industries there.

1 Our analysis was undertaken through use of data on livability concerns, from management level to employee level, as well as aforementioned research on the driving factors of business location. The resulting employment multipliers help to better convey the outcomes of increased employment in new clusters.
Employment multipliers\(^8\) may serve to illuminate the indirect employment generated through City Cluster Development by highlighting the impact of one organized sector worker in a specific industry.

Differences in planning (or lack of planning) for organized and unorganized jobs create equity concerns among the various populations in a new cluster. Our ethnographic sketch of the daily lives of IT and garment workers display to the connection of one worker to residents of other industries in the city. Multipliers display the differences in lifestyles and support services of employees in these industries, and their impact on the unorganized and organized economies.

Our research of the garment industry revealed that a single garment worker job creates approximately 1.7 indirect jobs\(^9\). Many of these jobs often take the form of unorganized employment.

We also found that for every one worker in the IT and BPO sectors, there are 4 jobs generated in the city.\(^10\) IT workers have a more consumption power than garment workers, which is evident through both the employment multipliers and the increased variety of indirect jobs that result from one direct job in this sector.

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8 The employment multiplier gives an estimate of the direct and indirect employment resulting from the addition of one employee in each sector. (Hirway et al, 2006)
9 (Bedi et al, 2008)
10 Nasscom and Deloitte, 2008

Our analysis illustrated the daily lives of workers in two sectors and their respective impacts on the city and other employment. It is important for KUIDFC to be aware of the differences in these employment dynamics according to sector in planning clusters for a particular industry. The presence of increased unorganized employment is particularly important, and KUIDFC must explicitly plan for the presence of these jobs in order for city clusters to be an effective and implementable form of development.
A DAY OF AN IT/BPO WORKER

IT WORKER AM PM

Cook Housemaid School Teacher Cafeteria Worker Janitor Auto Driver Shop Employee

AM = INDIRECT JOBS
A DAY OF A GARMENT WORKER

Local Milk Vendor

Waste Picker

Bus Driver

Vegetable Cart Vendor

Small Clinic Nurse/Doctor

GARMENT WORKER  AM  PM

= JOB  INDIRECT JOBS

GARMENT WORKER  AM  PM
In addition to our interviews with large and medium sized IT and garment firms, we visited and analyzed the Peenya Industrial Estate, one of the oldest planned industrial clusters in Southeast Asia. Established on the periphery of Bangalore in the late 1970’s, Peenya was well known for its initial success in locating manufacturing, engineering, and electrical products firms in a planned development. Now, approximately 5,000 small, medium and large scale industries exist in Peenya, covering an area of approximately 40 square kilometers.

The Peenya Industrial Association (PIA) is comprised of 2,500 small, medium, and large firms. The early success of the cluster is believed to be attributed to the direct communication between the industrial association and the government, which resulted in well-planned urban infrastructure that met the needs of both firms and workers.

Today, as a result of the less communication and negotiation between the government and firms about planning concerns, serious pressures are placed on the cluster. This impedes the economic and spatial growth of businesses. One such pressure is inadequate transportation infrastructure, which limits Peenya’s connection to surrounding area.
Although it is a centrally planned development, Peenya has both organized and unorganized economies that existing within the cluster. It is clear that industry growth was not necessarily accompanied by equitable community development in the area surrounding area the cluster. The presence of the unorganized economy despite its exclusion from initial plans exemplifies growth and development in India. In Peenya and in other industrial developments, the proliferation of unorganized employment is inevitable.

Through our social compact recommendations, KUIDFC can seize an opportunity to explicitly partake in planning for this type of employment. In doing so, it will ensure that the complexities and nuances of implementing development strategies are addressed, and that the benefits of economic growth work for both firms and residents in Bangalore.
Unorganized and Organized Sectors within the Peenya Estate
06. CHALLENGES AND MOVING FORWARD
Throughout the studio we have encountered certain challenges in helping KUIDFC to meet its goal of analyzing the role of the City Cluster Development model. In order to alleviate stress on Bangalore’s infrastructure and simultaneously encouraging economic growth throughout the state of Karnataka, CCD might prove to be a promising tool if KUIDFC recognizes that its limits and integrates key relationship-building measures that have been used in its implementation elsewhere. It is not CCD alone that will alter Bangalore for the better. Rather, it is KUIDFC’s role in this process that has the potential to initiate formative change for the city and its residents.

While we are not Bangaloreans, we have become fond of and familiar with the city, and recognize that the challenges it faces are complex. We will never be experts on this complexity at a grand scale.

Our outside perspective, however, has allowed us to question certain assumptions about the ways in which planning is undertaken, and (to use an American expression) to “see the forest from the trees.” Our international backgrounds also allow us to relate Bangalore’s urban challenges and potential solutions to the wide range of innovations that are used by other cities in addressing problems that arise from rapid economic and population growth. We have also come to this project with fresh eyes and without biases, which enables us to comment impartially on the core pre-requisites necessary for Bangalore’s successful development moving forward.

There are many nuances that affect how City Cluster Development will occur in Karnataka – and sometimes these nuances will change moment to moment. A complex political environment and economic realities create grounds for uncertainty with any new development. This reality has strongly impacted both the formation and content of our analysis. Our recommendations seek to position KUIDFC to be adaptable and flexible in the face of these challenges, so that it can better account for traditional oversights and failures of implementation in its development of urban infrastructure projects.

City Cluster Development is a relatively new form of spatial planning, and we believe it presents a remarkable opportunity for change in Bangalore. Through its implementation, KUIDFC is in a unique position to drive the city’s planning agenda and set priorities at the nexus of physical development and institutional capacity building – creating a more resilient future for Bangalore and the state of Karnataka.
1.1 CASE STUDY REVIEW

The following table lists the characteristics of how 25 other cities that have dealt with industrial growth over time. They are – Bangkok (Thailand), Barcelona (Spain), Calcutta (India), Chennai (India), Curitiba (Brazil), Delhi (India), Guadalajara (Mexico), Hyderabad (India), Istanbul (Turkey), Jakarta (Indonesia), Leon (Mexico), London (United Kingdom), Lucknow (India), Tianjin (China), New York (US), Ludhiana (India), San Jose (USA), Seoul (South Korea), Paju (South Korea), Singapore, Sinos Valley (Brazil), Surat (India), Manila (Philippines), Trujillo (Peru), Tirupur (India). Throughout the project, we compared the similarities and differences of growth/ livability indicators between cities in developing and developed countries, Asian and non-Asian cities, as well as Indian and non-Indian cities. We investigated the impact of existing industrial clusters/ city cluster development. Last but not least, we drew inspiration from innovative approaches to industrial growth in other cities.
25 CITIES: RAPID GROWTH

Bangkok, Thailand
Barcelona, Spain
Calcutta, India
Chennai, India
Curitiba, Brazil
Delhi, India
Guadalajara, Mexico
Hyderabad, India
Istanbul, Turkey
Jakarta, Indonesia
Leon, Mexico
London, United Kingdom
Lucknow, India
Tianjin, China
New York, USA
Ludhiana, India
San Jose, USA
Seoul, South Korea
Paju, South Korea
Singapore
Sinos Valley, Brazil
Surat, India
Manila, Philippines
Trujillo, Peru
Tirupur, India
13 CITIES: INDUSTRIAL CLUSTERS

Bangkok, Thailand

Delhi, India

Guadalajara, Mexico

Leon, Mexico

Tianjin, China

Ludhiana, India

Paju, South Korea

Singapore

Sinos Valley, Brazil

Surat, India

Manila, Philippines

Trujillo, Peru

Tirupur, India
6 CITIES: INNOVATIVE COMPACTS

BANGKOK, THAILAND

TIANJIN, CHINA

SINGAPORE

SINOS VALLEY, BRAZIL

MANILA, PHILIPPINES

TIRUPUR, INDIA
More Information on case studies -

**Bangkok (Thailand)**


**Jakarta (Indonesia)**


**Leon (Mexico)**


**Tianjin (China)**


**New York (US)**


NYTimes: Brooklyn Lab is part of city's goal to be a Biotech center; http://www.nytimes.com/2008/11/11/nyregion/12biotech.html

New York City Bioscience Cluster; http://www.nycbiotech.org/pdfs/NYC_Bioscience_Cluster_Aug_09.pdf

Wall Street Journal: Biotech space gets off ground in Brooklyn; http://online.wsj.com/article/SB10001424052748704513104575256581292654628.html

SUNY Downstate medical center: http://incubator.downstate.edu/Incubator.htm

**Ludhiana (India)**


**Paju (South Korea)**

Gyeonggi Urban Innovation Corporation (2009), 2009 Industrial Complex Introduction


Singapore


Sinos Valley (Brazil)


Manila (Philippines)


Trujillo (Peru)


Tirupur (India)


<table>
<thead>
<tr>
<th>Time (Decade)</th>
<th>Marikina City, Manila</th>
<th>Samut Prakan, Bangkok</th>
<th>Biopolis, Singapore</th>
<th>East Jakarta Industrial Area, Cikarang, Indonesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990s</td>
<td>21.5 km²</td>
<td>190.5 km²</td>
<td>9.5 km²</td>
<td>48.5 km²</td>
</tr>
<tr>
<td>1970s</td>
<td>496,205</td>
<td>460,141</td>
<td>138,668</td>
<td>106,479</td>
</tr>
<tr>
<td>2000s</td>
<td>248 firms; 4000 workers</td>
<td>200 firms; 100,000 workers</td>
<td>300,000</td>
<td>2,000 firms; 4,000,000 employees</td>
</tr>
<tr>
<td>Dominant City</td>
<td>Manila</td>
<td>Bangkok</td>
<td>Singapore</td>
<td>Jakarta</td>
</tr>
<tr>
<td>Dominant Industry</td>
<td>Shoe Manufacturing</td>
<td>Automobiles</td>
<td>Biomedical Sciences</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Distance From Main City</td>
<td>21 km</td>
<td>44 km</td>
<td>in the city</td>
<td>48.5 km</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time (Decade)</th>
<th>Tianjin Economic Development Area (TEDA), China</th>
<th>Biotechnology Cluster, Brooklyn</th>
<th>Paju LCD Cluster, South Korea</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980s</td>
<td>27.68 km²</td>
<td>7.3 km²</td>
<td>672.56 km²</td>
</tr>
<tr>
<td>2000s</td>
<td>143,000</td>
<td>12,000</td>
<td>387,254</td>
</tr>
<tr>
<td>1990s</td>
<td>4,000 firms; 419,200 workers</td>
<td>1000 workers</td>
<td>2,443 firms; 43,542 workers</td>
</tr>
<tr>
<td>Dominant City</td>
<td>Tianjin</td>
<td>New York</td>
<td>Seoul</td>
</tr>
<tr>
<td>Dominant Industry</td>
<td>High-technology (mostly ICT)</td>
<td>Biotechnology</td>
<td>LCD / Tech</td>
</tr>
<tr>
<td>Distance From Main City</td>
<td>50 km</td>
<td>10 km</td>
<td>28.96 km</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time (Decade)</th>
<th>El Porvenir - Trujillo, Peru</th>
<th>Sinos Valley, Brasil</th>
<th>Guadalajara and Leon, Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980s</td>
<td>36.7 km²</td>
<td>217 km²</td>
<td>151 km² / 1,219 km²</td>
</tr>
<tr>
<td>1990s</td>
<td>132,461</td>
<td>237,044</td>
<td>1,500,000 / 1,400,000</td>
</tr>
<tr>
<td>1960s</td>
<td>2,000 small and micro firms</td>
<td>1,800 firms</td>
<td>70,000 firms; 1,100 workers / 2,700 firms; 25,000 workers</td>
</tr>
<tr>
<td>Dominant City</td>
<td>Lima</td>
<td>São Leopoldo / Porto Alegre</td>
<td>Guadalajara and Leon</td>
</tr>
<tr>
<td>Dominant Industry</td>
<td>Footwear Manufacturing</td>
<td>Footwear Manufacturing</td>
<td>Footwear Manufacturing</td>
</tr>
<tr>
<td>Distance From Main City</td>
<td>350 miles north</td>
<td>10.3 km / 43.5 km</td>
<td>in the city</td>
</tr>
<tr>
<td>Time (Decade)</td>
<td>Peenya Industrial Estate, Bangalore, India</td>
<td>Tirupur, India</td>
<td>Ludhiana - Punjab, India</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------------------------</td>
<td>----------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>1970s</td>
<td>40 km²</td>
<td>346,551</td>
<td>400,000</td>
</tr>
<tr>
<td>1980s</td>
<td>27.19 km²</td>
<td>35,255</td>
<td>2400 firms; 300,000 workers</td>
</tr>
<tr>
<td>1970s</td>
<td>310 km²</td>
<td>8,000 firms; 500,000 workers</td>
<td>11,000 firms; 200,000 workers</td>
</tr>
<tr>
<td>Dominant City</td>
<td>Bangalore</td>
<td>Coimbatore</td>
<td>Ludhiana</td>
</tr>
<tr>
<td>Dominant Industry</td>
<td>Mechanical and Electrical Manufacturing</td>
<td>Cotton Knitwear</td>
<td>Woolen Knitwear</td>
</tr>
<tr>
<td>Distance From Main City</td>
<td>in the city</td>
<td>60 kilometers</td>
<td>in the city</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time (Decade)</th>
<th>Lucknow - Uttar Pradesh, India</th>
<th>Surat Apparel Park - Gujarat, India</th>
<th>Shalimar Village - Delhi, India</th>
<th>Surat Gem and Jewelry Park, Gujarat, India</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000s</td>
<td>8 acres</td>
<td>2 km²</td>
<td>2,507</td>
<td>950 km²</td>
</tr>
<tr>
<td>2000s</td>
<td>67,890</td>
<td>11 firms; 4,000 employees</td>
<td>250 firms</td>
<td>350 firms</td>
</tr>
<tr>
<td>1950s</td>
<td>600,000</td>
<td>17 firms; 400 employees</td>
<td>Delhi</td>
<td>Surat</td>
</tr>
<tr>
<td>Dominant City</td>
<td>Lucknow</td>
<td>Surat</td>
<td>Delhi</td>
<td>Surat</td>
</tr>
<tr>
<td>Dominant Industry</td>
<td>Biotechnology</td>
<td>Textiles</td>
<td>Small Scale Manufacturing</td>
<td>Jewelry</td>
</tr>
<tr>
<td>Distance From Main City</td>
<td>in the city</td>
<td>19 km</td>
<td>in the city</td>
<td>9 km</td>
</tr>
</tbody>
</table>
1.2 LITERATURE REVIEW

To inform us of the planning questions for this studio, we studied theories of spatial growth, industrial economy and urban development. We also looked at methodological literature that informs our data collection and analysis. Below is a snapshot of what we studied –

1. Background & Context
   - BMRDA (2011) Bangalore Metropolitan Region Revised Structure Plan 2031. [Draft Report]

2. Spatial Growth & Planning
   - Deconcentration; Growth Boundaries; Infill Strategy
   - City Cluster Development; Industrial Clusters
   - Industrial Ecology; Industrial Parks; Special Economic Zones
     Frosch, R.A. & Gallopoulos, N.E. (1989) Strategies for Manufacturing. Scientific American: 144-152

3. Industrial Economy & Employment
   - Industry Dynamics; Supply/ Global Value Chain

Employment Dynamics; Wage-Labour Relations; Organized and Unorganized Economy
Carr, M., Chen, M.A., & Tate, J.. “Globalization and Home-Based Workers.” Feminist Economics, 6(3): 123-142

4. Urban Development

Public-Private Partnerships; Institutional Arrangements; Planning
Urban Infrastructure; Livability and Equity Issues


Agglomeration Economies; Employment Multiplier; Economic Growth; Economic Development


5. Methodology

Case Study Analysis


Benchmarking: Indicators & Metrics


Negotiation Skills
In order to understand the impact of Bangalore’s rapid economic and population growth over the last 60 years we first had to understand what quality of life means for people in Bangalore. It was clear to us from our introduction to the city - that Bangalore’s rapid growth is perceived to have a negative impact on the built and natural environment within the city. A city that was once nicknamed the ‘Garden City’ and seen as one of India’s most livable urban areas, was now gaining a reputation of overcrowded, congested, urban agglomerate with inadequate infrastructure services to meet residents basic needs. Bangalore’s rapid growth and economic development have clearly put the city on the map, but it has not been without any consequences.

We began this task from a comparative perspective given we do not have the tacit or experiential knowledge of someone living in Bangalore. We wanted to understand how other cities balanced issues of growth and livability, and what quality of life factors mattered most. We studied literature that defined livability in an urban context. The most comprehensive definition we found was from the International Centre for Sustainable Cities: “Livability refers to an urban system that contributes to the physical, social and mental well-being and personal development of all its inhabitants” (World Urban Forum, Vancouver, 2006).

We then reviewed nine different indices of organizations that have tried to measure livability in a systematic way. These include the World Bank Sustainable Development Indicators, United Nations Development Indicators, Urban Age Livable Cities indicator and the McKinsey Livability Indicators.
The most common factors of livability that emerged from these matrices were:

**GOVERNANCE**
- Access to information
- Responsiveness to community input
- Transparency in political & administrative process
- Functional tax system
- Lack of corruption

**MOBILITY**
- Efficiency of transportation systems
- Access to transportation
- Affordability of transportation
- Walkability

**COMMUNITY ENGAGEMENT**
- Public meeting space & facilities
- Public participation in political process
- Presence of cultural diversity
- Access to cultural resources

**HOUSING**
- Affordability
- Quality of housing stock
- Corruption
- Proximity to employment & amenities
- Appropriateness of housing stock to population needs

**HEALTH**
- Life expectancy
- Incidence of disease
- Access to hospitals & health services
- Infant mortality
- Reproductive capacity
- Access to affordable & nutritional food

**SAFETY**
- Crime rates
- Accidents
- Pedestrian safety

**NATURAL ENVIRONMENT**
- Air quality
- Clean water
- Preservation of water bodies
- Preservation of biodiversity
- Availability of open space
- Infrastructure
- Quality of buildings & structures
- Access to basic services & facilities
- Reliability of transportation
- Presence & quality of sidewalks
- Cleanliness

**ECONOMIC OPPORTUNITIES**
- Availability of adequate employment
- Livable wages

**EQUITY**
- Access to education
- Access to technological improvements
Three of these organizations have created a livability index that is specific for India, and one of these organizations has measured livability in India’s largest cities, including Bangalore.

Prior to visiting Bangalore we used interviews, anecdotal reports and scientific studies to understand contemporary livability challenges in Bangalore. We found four reoccurring issues that seemed to plague individuals across income levels and ethnicity in Bangalore; access to water, electricity, waste and the mobility of residents.