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Competitive Cities in India

Kanpur: Unrealized Potential: the Lagging Growth Trajectory of a Manufacturing Hub

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EXECUTIVE SUMMARY

This case study of the city of Kanpur contributes to developing an understanding of the factors that drive city competitiveness in general and in India in particular. The city of Kanpur in the state of Uttar Pradesh (UP) in India offers a contrasting case to the economically successful city of Coimbatore (Tamil Nadu, India) and other economically successful cities elsewhere that were studied as part of the World Bank Group's report on *Competitive Cities for Jobs and Growth*.

Kanpur's lagging growth trajectory cannot be understood purely in terms of city-level factors; national and state-level factors also play an important role. Kanpur's economy was adversely affected by economic liberalization initiated in 1991 and the closure of large mills and, unlike most other Tier 1 or Tier 2 cities, it underwent a prolonged decline (until 2004). While the city did benefit from support by the Jawaharlal Nehru Urban Renewal Mission (JnNURM) during the fragile recovery that started in 2005, the lack of adequate funding to meet city-level co-financing requirements under the scheme limited access to infrastructure development programs. Compared with economically successful cities, Kanpur's investment expenditures remained very low. The completion of the Delhi-Kolkata segment (in 2008) of the Golden Quadrilateral national highway network has contributed to Kanpur's fragile recovery, as it provided improved connectivity and market accessibility for Kanpur's manufacturing firms.

In the context of a weak city government, this study focuses on proactive interventions made by various city-level stakeholders, in this case largely the private sector, to improve Kanpur's competitiveness. By looking at who were the main actors, what were their efforts, and the impact of those efforts on the city as a whole, the study identified three main factors that affected the competitiveness trajectory of Kanpur. First, similar to other cities studied, and especially Coimbatore, the private sector played an important role in the economic development of Kanpur, but its impact was limited by the political economic context. In Kanpur, while selected industry or business associations were able to tap into state support for industrial parks, the economic impact of these strategic alliances for infrastructure investments was limited because common sector- or economy-wide benefits were not factored in. These alliances failed to grow into the more broad-based and sustainable "growth coalitions" that were crucial to the economically successful cities studied elsewhere. Second, some segments of Kanpur's economy were able to connect to global markets and diversify with the support of foreign buyers and largely without government support. However, the benefits were not industry-wide, and certainly not Kanpur-wide. Third, while the few firms relying on research and training used these as a cornerstone of growth, more generally the major educational and training institutions were little used in Kanpur. Poor standards of living and lower salaries had the effect of driving away locally-trained talent, leaving unfulfilled local demand for white-collar workers and underutilized first-class technical training institutions.

From these lessons and the contrast with Coimbatore, some insights emerge as to which city-level initiatives may improve the prospects for Kanpur and other cities facing similar conditions, factors and challenges:

1. Widening the membership of industry associations and facilitating cross-association membership.
2. Broadening the coalitions that seek strategic alliances with the state of UP to ensure more economy-wide and institutionalized benefits.
3. Establishing relevant local academic/training institutions. While the gap between Kanpur's first-class academic institutions and largely low-tech industry may not be easy to overcome, the example of Coimbatore shows the benefits of firms investing in local academic/training institutions.

For Kanpur to play its role in Uttar Pradesh's ambitious development targets, the central and state governments could consider undertaking the following:

1. **Increase transfers to the Kanpur Nagar Nigam, first to allow it to cover the costs of the maintenance roles assigned to it** and, over time and with increasing capacity of the urban local body (ULB), allow it to fulfil its other functions.
2. **Place the burden of industrial park location decisions, land purchases, and park design and operation on those best placed to undertake them and navigate the local political economy of implementation, namely the future occupiers of the park**. Experience from industrial park programs globally, and in India in particular, suggests that programs that take into account the needs of the private sector, on location and design in particular, but also local political economy conditions, are more likely to attract investment and be self-sustaining. In contrast, park projects that are government-led, with little or no private sector input, as was often the case in Kanpur, have generally resulted in low investment and a limited ability to adapt to business needs and maintain adequate levels of maintenance.
3. **Facilitate public investment that increases the quality of life in the city.** Low quality of life makes it harder to attract skilled, technical and entrepreneurial talent from outside the city. It also leads to graduates trained at IIT Kanpur—the city's premier and globally renowned educational institution—leaving the city on completion of their training.

Kanpur's recent economic recovery provides hope but remains fragile. Kanpur's future will hinge on the ability of all stakeholders to foster more broad-based growth coalitions and linkages in order to mobilize public and semi-public goods to translate the city's potential into wider, stronger and more sustainable economic benefits.

INTRODUCTION

This case study of the city of Kanpur contributes to developing an understanding of the factors driving city competitiveness in general and in India in particular. It builds on and complements the World Bank Group's report on *Competitive Cities for Jobs and Growth* that analyzes what makes a city competitive and how more cities can grow their economies.[1]

One reason why Kanpur was selected for this case study is that it offers a contrasting trajectory to the economically successful city of Coimbatore and to economically successful cities elsewhere. Historically, Kanpur was a successful city and a leading industrial hub for the whole country until the late 1980s. The city then fell into a prolonged decline (1989-2004) relative to the rest of India and sometimes even in absolute terms, before finally experiencing a fragile recovery (2005-12), albeit still founded largely on what had been its key sectoral strengths (Figure 1; Table 1). In 1991, at the beginning of the period of economic liberalization, Kanpur seemed better poised than other "Tier 2"[2] cities for economic growth, with a skilled workforce, first-class educational institutions and the presence of a manufacturing hub. However, between 2001 and 2012, Kanpur's GDP growth lagged behind GDP growth of other Tier 2 cities that are today seen as the mainstay of India's economic future (Figure 1).

Another reason for studying Kanpur is India's specific urban-governance context and the relevance of a contrasting case to the successful one of Coimbatore. Both Kanpur and Coimbatore were once labelled as a "Manchester of India", in the north and south of the country, respectively. Both were strong manufacturing hubs but they evolved quite differently. Coimbatore pursued a path towards greater prosperity over several decades within a context of limited powers resting with Indian cities compared with other levels of governance in the Indian federal structure. The contrast between Coimbatore and Kanpur sheds light on the power of coalitions formed between city-level private and public players, the "strategic alliances" city-level players or coalitions formed with the state and national authorities, and the consequent impacts.

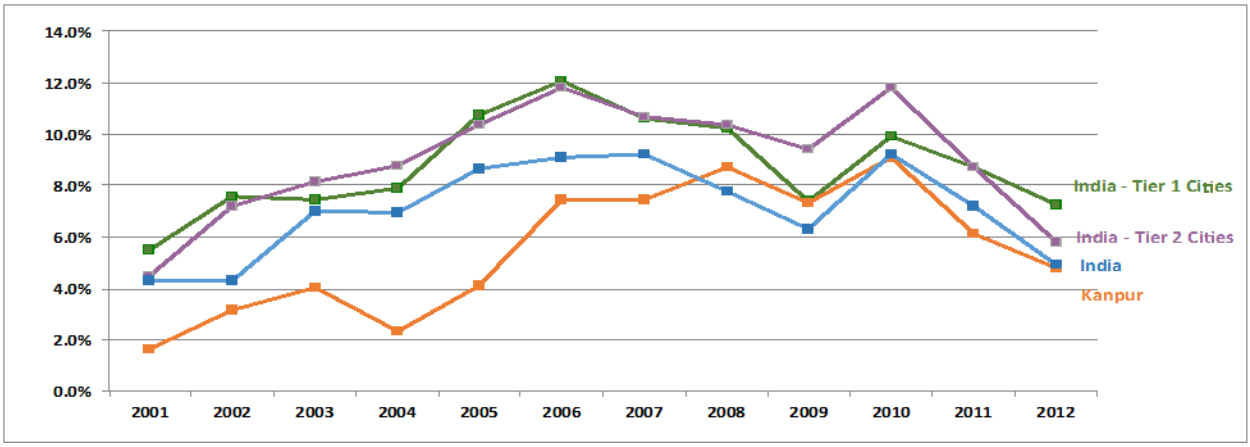
Finally, Kanpur is of interest because of the key challenges the city has faced, which many Indian cities and possibly cities elsewhere also face. Kanpur's challenges include: being landlocked; being located in a low-income state with below average GSDP growth that is losing ground as an industrial base; having particularly weak city authorities compared with the already weak average Indian city; experiencing a shift from a centrally-planned to a market-based economy; and struggling with industrial pollution issues.

This study uses the city's economic performance over time to highlight triggers and related strategic interventions in the context of India's overall urban governance context, as well as Kanpur's specific challenges. Considering the relatively large influence of state governments on Indian cities, the analysis is set in the context of national- and state-level policies and trends that impacted the city. It examines the city's competitiveness and growth trajectory—relative to the state and national context—by looking at the development of its core sectors, the way decisions were made for strategic planning, and implementation arrangements. It extends its analysis beyond the role of city leaders to include the role of the local private sector and other local stakeholders, working in conjunction—or out of sync—with other levels of government in achieving city-level economic outcomes and in working to resolve its specific challenges.

[1] Kilroy, Austin, Megha Mukim, Stefano Negri. 2015. *Competitive cities for jobs and growth: what, who, and how*, Washington, D.C.: World Bank Group. www.worldbank.org/competitivecities

[2] The Sixth Central Pay Commission classified cities as "X", "Y," and "Z" based on the population of the urban agglomeration area. Cities classified as "X" are commonly called "Tier-1" cities and have generally more than 5 million inhabitants and cities classified as "Y" are generally between 1-5 million inhabitants and are commonly referred to as "Tier-2" cities.

Figure 1: GDP growth in Tier 1 and Tier 2 cities in India, 2001-12[3]



Source: Oxford Economics (January 2014). Global Cities 2030.

While the research methodology focused on the private sector, it added to the "usual" competitiveness analysis of the private sector by looking at the various levers used by stakeholders in the public, private and civic sectors to enhance city competitiveness. The study was undertaken with a view to adapting the framework used for the analysis of economically successful cities worldwide to the specifics of the Indian urban scenario. A chronological narrative of the economic development of the city was created, after which key players were identified. In-depth interviews were conducted with stakeholders in the public, private and civic sectors to understand their formal and informal roles and relationships, as well as to examine the deliberate interventions that were undertaken by these actors. The study thus predominantly relies on interview findings, using qualitative research methods such as triangulation to validate findings.

Table 1: City of Kanpur: Key facts and figures

6.74%	Average annual GDP growth (2007-12)[1]
0.20%	City GDP as ratio of national GDP in 2012[1]
2.9 million	City population in 2012[1]
0.83%	City population annual growth (2007-12)[1]
-0.12%	Annual average job growth (2007-12)[1]
3 in-city / 6 outside city	Total number of industrial parks (in-city/outside city)[2]

Sources:[1] Oxford Economics (January 2014). Global Cities 2030,[2] CRISIL, Private Sector Development Policy, 2013.

[3] Oxford Economics (January 2014) database. Tier-2 cities included (limited to those with a population of 1.5-3.5 million in 2000) are: Coimbatore, Indore, Jaipur, Kochi, Kozhikode, Lucknow, Nagpur, Patna, Surat, Thiruvanthapuram, and Vadodara. The Tier-1 cities in 2000 were Delhi, Mumbai, Kolkata, Chennai, Bengaluru and Hyderabad.

Box 1: Coimbatore (Tamil Nadu, India): A private sector-driven success story

Coimbatore is a mid-sized city with an economy heavily reliant on manufacturing, but with some diversification over the past half-decade into services, primarily IT/ITES/BPO. Family-owned textile and engineering firms are the mainstay of Coimbatore's manufacturing economy, while emerging sectors such as logistics/distribution, food production, tourism and health care are still in their infancy but have growth potential.

Coimbatore's success is the result of a confluence of multiple factors, some inherited or driven by its relatively positive national and state contexts, and some enabled through deliberate interventions, mainly by local private-sector actors. The city's key economic characteristics include: educational attainment and talent formation levels higher than the rest of Tamil Nadu and much of India; a tradition of small, family-owned manufacturing; and diversification from traditional sectors such as textiles and industrial machinery into precision engineering and electromechanical components.

Deliberate economic development efforts in Coimbatore took a variety of forms, although none of these included a strong role of city-level public authorities:

1. Local industry associations and the Chamber of Commerce, based on healthy "coopetition" (competitive cooperation) among their member firms, helped to build local capacity and upgrade technologies within their respective industries and helped to promote the city as a place to do business through publications, events and inbound/outbound business development missions.
2. Coimbatore's associations acted as advocates for the city and its business community at the state and national levels, resulting in long-term strategic alliances between local business associations and the state and central government. Moreover, cross-membership made the associations' joint initiatives more effective, and facilitated coordination among them. This resulted in institutionalized alliances between associations and state-level authorities or agencies for the development of special economic zones and training, research and testing facilities.
3. In addition to advancing local economic development through their own business activities, Coimbatore's for-profit firms have acted as the city's main promoters. For example, private real estate developers have worked to attract multinationals to invest in Coimbatore.
4. Coimbatore's family engineering firms have established technical colleges, schools, hospitals, etc., through corporate trusts/foundations, maintaining collaborative relationships and mutually-beneficial training arrangements. As a result, industry-academia linkages are exceptionally strong and directly influence curriculum development.

Source: World Bank. 2015. *Competitive cities knowledge base: Appendices to six case studies of economically successful cities.* Washington, D.C.: World Bank Group.

NATIONAL, STATE AND CITY CONTEXT

Kanpur's trajectory was affected by the national and state context that influenced all cities in India and Uttar Pradesh, respectively, as well as specific national-level and state-level factors that affected Kanpur specifically. While the study focuses on the past decade of Kanpur's economic trajectory, this section takes a longer historical perspective, given that these earlier periods provide important insights.

National and State Context

Kanpur's economic troubles and recent fragile recovery occurred within a changing national macro-environment of economic liberalization. In 1991, India shifted to trade opening and economic liberalization, moving away from import substitution and towards export orientation. In the past two decades, India's average annual growth rate has accelerated to nearly 7 percent, against an average of 4 percent in the previous four decades.[4] The shift was accompanied in a number of Indian cities, including Kanpur, by the closure of large government-owned industries, most symbolically large textile mills.[5] However, as part of its industrial policy of 1991 and onwards, the Government maintained several programs of industry-wide and sector-specific support, especially for less industrialized areas, as well as for micro, small and medium enterprises (MSMEs).

Among Indian states, Uttar Pradesh's GDP growth and investment in hard and soft infrastructure lag behind other low-income states and the rest of India. While growth in the state's GDP rose from 4.7 percent per year in FY1993-99 to 6.0 percent per year in FY2000-10, it is the lowest among comparator states. Per capita GSDP growth from FY1994 to FY2014 was almost 2 percentage points lower than in India as a whole.[6] During the past three decades, the state has consistently underinvested in hard and soft infrastructure compared with the "leading" states.[7] In this period, the most successful ("leading") states in India have not only spent proportionally more on social and economic infrastructure than UP, but have increased that spending at a higher rate, resulting in a widening gap. While investment in infrastructure per capita by these leading states was already 47 percent higher than by UP in 1986, it became 82 percent higher in 1996 and 132 percent higher in 2011. In 2011, UP spent Rs.4,354 per capita on social and economic infrastructure compared with Rs.10,083 per capita in the leading states.[8]

Meanwhile, rapid urbanization has not been accompanied by improvements in cities' institutional capabilities and financial resources. While the 74th Constitutional Amendment Act (1992) sought devolution of power to the ULB level, urban governance in India remains very weak and coordination is poor.[9] Launched in 2005, JnNURM aimed to address the challenges of urbanization by facilitating infrastructure investment and service delivery improvements. It envisaged 23 reforms (11 mandatory and 12 optional) to be implemented by 67 "mission cities." While the program has been successful in increasing awareness of urban issues and catalyzing infrastructure investment in urban areas, limited capacity at the

[4] UNCTAD (United Nations Conference on Trade and Development). 2012. *Twenty Years of Liberalization: Experience and Lessons*; Saikia, Dilip. 2012. *India's Economy after Liberalization: Performance and Challenges*; and World Economic Outlook Database, April 2015.
[5] Ministry of Textiles, *Revival of NTC Mills*, February 10, 2014, http://pib.nic.in/newsite/PrintRelease.aspx?relid=103403; and Mills on the Move, http://www.ibef.org/download/Textile_040610.pdf
[6] World Bank. 2015. *India: Uttar Pradesh Growth and Inclusion Report,* Volume I. Washington, D.C.: World Bank Group.
[7] Tamil Nadu, Gujarat, Andhra Pradesh, Maharashtra and Karnataka.
[8] Reserve Bank of India. 2015. *State Finances: A Study of Budgets*, https://rbi.org.in/Scripts/AnnualPublications.aspx?head=State+Finances+%3a+A+Study+of+Budgets
[9] Planning Commission, *Twelfth Five-Year Plan,* Volume 1, p. 34; Ahluwalia, Isher Judge. 2014. "Urban Infrastructure and Service Delivery", p. 41, in *Urbanisation in India: Challenges, Opportunities, and the Way Forward*. Edited by Ahluwalia, Isher Judge, Ravi Kanbur, P.K. Mohanty; and Mohanty, P.K.. 2014. "A Municipal Financing Framework", p.123 in *Urbanisation in India: Challenges, Opportunities, and the Way Forward*. Edited by Ahluwalia, Isher Judge, Ravi Kanbur, P.K. Mohanty.

local level has constrained the implementation of reforms.[10] Moreover, while UP devolved all the 18 functions under the 74th Amendment to the ULBs, the lion's share of the budget is still managed by the state. In 2011, only 4 percent of the 2011 state budget was transferred to the lower bodies. In comparison, Tamil Nadu, which also devolved all functions, except fire services, to the ULBs, transferred almost 9 percent of the state budget to lower bodies in 2011. In addition, a higher per capita revenue base in Tamil Nadu meant that in 2011 it transferred Rs.1,040 per capita, almost four times more than UP's transfer of Rs.262 per capita.[11]

National-level and state-level factors that specifically impacted Kanpur's growth

Kanpur's economy was adversely affected by the change in the national economic framework and, unlike most other Tier 1 or Tier 2 cities, it never really recovered from that change. Coimbatore, Surat, Ahmedabad and Mumbai all recovered from the closure of their large government-owned textile mills. More generally, comparable Tier 2 cities have exhibited much higher GDP growth than Kanpur (Figure 1). In Kanpur, the state owned not just textile mills, through the National Textile Corporation, but also the Tanneries and Fertilizer Corporation through the British India Corporation (BIC). All closed down in the 1990s. Large private sector firms, such as scooter-manufacturer LML Auto Ltd., were also unable to adapt to new competition from foreign manufacturers, such as Honda and Yamaha, as well as fast-changing market preferences, and LML stopped production in 2002. Over the past decade, Kanpur's private sector has become increasingly dominated by SMEs that had served as ancillaries to large industries, both public and private.[12]

JnNURM supported long overdue infrastructure improvements in Kanpur and had a disproportionate impact, albeit late and from a low base. Although constricted by its capacity to raise its share of the funds,[13] the Kanpur Nagar Nigam, Kanpur's ULB, identified in its 2006 City Development Plan a number of infrastructure projects, including solid waste management, water supply and the expansion of the sewerage network in the inner city area, and also introduced a property tax reform. The solid waste management program has been completed and the water supply and sewerage network expansions are expected to be completed in 2015. A better database and improvements in collection helped to increase revenues from property taxes by almost 50 percent between 2009 and 2012. However, Kanpur Nagar Nigam's lack of adequate fiscal capacity to meet the required financial contribution has hampered Kanpur from accessing other infrastructure programs under JnNURM.[14] While improving over time, Kanpur lags behind other cities in Uttar Pradesh on key infrastructure development criteria (Table 2).

The Golden Quadrilateral highway project has significantly improved connectivity and market accessibility for Kanpur's industries. The Golden Quadrilateral (GQ) highway project connects the four major cities of Delhi, Kolkata, Mumbai and Chennai. Other Tier 1 and Tier 2 cities, such as Pune, Bengaluru, Ahmedabad and Surat, are also linked to the GQ network. Begun in 2001, the last segment of the network was completed in 2013. The Delhi-Kolkata segment passes through Kanpur as National

[10] World Bank. 2013. *Urbanization beyond Municipal Boundaries: Nurturing Metropolitan Economies and Connecting Peri-Urban Areas in India.* World Bank: Washington, D.C. The JnNURM program has been discontinued at the national level as of 2014. Since then, the government has announced two missions aimed at urban development: the Smart Cities Mission and the Atal Mission for Rejuvenation and Urban Transformation (AMRUT), as well as other government initiatives in the urban space, such as the Swachh Bharat Mission (Urban), a mission with targets regarding individual and community toilets, and solid waste management.
[11] Reserve Bank of India. 2015. *State Finances: A Study of Budgets.*
[12] MSME-DI (MSME - Development Institute) Kanpur. 2011. *Brief Industrial Profile of Kanpur*.
[13] JnNURM required a 30 percent city contribution and a 20 percent state contribution.
[14] City of Kanpur. 2006. *Kanpur City Development Plan, 2006*. Interview with the City of Kanpur, March 18 and 19, 2015.

Highway 2 with a four- to six-lane highway and was completed in 2008.[15] This project significantly benefitted industries located along the highway.[16]

Table 2: Change in infrastructure indicators for select Uttar Pradesh cities, 2001-11

Change in Relevant Indicators (2001-2011)	Change in Literacy Rate		Improvement in Health (Hosp/100,000 popn)		Increase in Roads (km/100,000 popn)		Increase in Road Density (km/1000 sqkm)		Electricity Consumption (Kwh/p.c.)	
	Change	Rank	Change	Rank	Change	Rank	Change	Rank	Change	Rank
Kanpur	5%	7	-2.4	7	7.0	6	220.0	7	3.0	6
Lucknow	9%	4	-0.6	2	25.0	5	638.0	3	329.0	2
GB Nagar	12%	1	-0.9	3	-1.1	7	250.0	6	-	-
Etawah	9%	4	0.6	1	59.1	1	468.0	4	140.0	3
Allahabad	10%	2	-1.0	4	49.0	2	660.0	2	113.0	4
Agra	9%	4	-1.0	4	21.0	3	383.0	5	533.0	1
Varanasi	10%	2	-1.3	6	20.0	4	692.0	1	111.0	5

Source: Directorate of Economics and Statistics, Uttar Pradesh.

City Context

Scale: Kanpur, until recently the largest city in UP, has a population of 2.9 million people over an area of 300 km^2. Its central location in UP provides the city with good connections to neighboring states and the National Capital Region, which together account for nearly 400 million people.

***Governance*:** Kanpur is administratively divided into six zones and 110 wards. The 74th Amendment ensured that regular elections take place to elect a municipal council and a mayor. The executive arm of the ULB is the municipal commissioner who is appointed by the state government and de-facto operates along policy lines established at the state level. The short tenure and the lack of legislative powers at the mayoral level, together with the limited fiscal resources available to the ULB, limit the mayor to little more than a figurehead. The municipal commissioner primarily coordinates with the state bureaucracy present in the city—the district magistrate and regional commissioner—to implement state and national policies.[17] The parshads and sabhasads (municipal and ward corporators) and the mayor lobby with city bureaucrats in matters of civic administration, but do not have powers at the local level to implement policies or create legislation for the city.[18] Key decisions for the city, such as hours of electricity supply, the building of roads, and establishing industrial areas, are taken at the state level and implemented by state-level bodies. The city-level authorities are left with the task of maintenance and operations, but are constrained by their limited fiscal capacity. Municipal government is understaffed and underpaid, and its officers often lack the technical training and education to adequately carry out their roles and duties, increasing pressure on the few state-level officers who are in key positions in the city administration.

Institutional responsibility: The key functions that the Kanpur Nagar Nigam (KNN) undertakes are land use management and town planning, for which it is dependent on the Kanpur Development Authority (KDA), the parastatal land development authority of Kanpur. The KNN collects property taxes and is authorized to allocate these revenues. Recent policy mandates that property taxes collected from industrial areas must be allocated within those areas.[19] The KDA works separately from the ULB and is responsible for both housing and commercial development. It primarily operates on the outskirts of the KNN,

[15] National Highways Authority of India. Completed Stretches on NH2 (Delhi-Kolkata). http://www.nhai.org/completednh2.asp
[16] Ghani, Goswami, Kerr. 2014. Highway to Success: The Impact of the Golden Quadrilateral Project for the Location and Performance of Indian Manufacturing.
[17] The district magistrate and the regional commissioner are usually transferred every two years.
[18] Ahluwalia, Isher Judge. 2014. "Urban Infrastructure and Service Delivery", p. 38-39, in *Urbanisation in India: Challenges, Opportunities, and the Way Forward*. Edited by Ahluwalia, Isher Judge, Ravi Kanbur, P.K. Mohanty.
[19] Interview with KNN, March 19, 2015.

developing new areas for the increasing needs of the city. However, there seems to be little institutional coordination between them. Interviews suggest that the KDA operates under very low margins and often lacks resources to be able to buy land from farmers.[20] Water and sewage are currently handled by a separate body, the Kanpur Jal Sansthan (KJS) that is a subsidiary of the Uttar Pradesh Jal Nigam (UPJN). Similarly, electricity supply is handled by the Kanpur Electricity Supply Company (KESCO), which is a subsidiary of the Uttar Pradesh Power Corporation Ltd (UPPCL). For industrial and private sector development, the key bodies are at the state and central government levels. Uttar Pradesh State Industrial Development Corporation (UPSIDC) develops land and infrastructure for industrial use, which is then handed over to the ULB for maintenance. The MSME-Development Institute (MSME-DI) located in the city is mandated to assist MSMEs, create industrial clusters and provide common facilities. Over the past 20 years, the UP Pollution Control Board (UPPCB) has been very active in Kanpur as the city continues to struggle with industrial pollution issues.

Fiscal resources: Its low revenue base, high dependence on transfers, and substantial running costs have left the KNN with little room to plan strategically or implement new programs. On the revenue side, with much underutilized land reducing its own tax base, nearly 70 percent of Kanpur's total revenue comes in the form of transfers from the State Finance Commission.[21] On the expenditure side, the KNN spent twice as much of its budget on establishment and administration costs as other cities, about 65 percent in 2004 and 76 percent in 2011.[22]

Land ownership: While land is a significant resource for any city, this is not the case for Kanpur. Centrally-located prime land, previously occupied by textile mills and TAFCO, remains in dispute with the National Textile Corporation. A large area earmarked as "cantonment" is assigned to the Indian army. Having underutilized or state-owned prime land within the city has reduced property tax revenue, as well as forced UPSIDC, the KDA, and the private sector to look for land far from the inner city for industrial parks and housing projects.

***The private sector and external stakeholders*:** Industry associations are fragmented, not only along sector lines, but also along political lines, with strong linkages to state- and national-level political parties. There are several institutions of research and training in Kanpur, led by the Indian Institute of Technology (IIT) Kanpur. While their association with industry and the city is limited, in recent years academia and research are being increasingly leveraged by industry- and city-level bodies such as the KNN or the Ganga Pollution Control Unit (GPCU) of the UP Jal Nigam (UP JN) to address specific needs. The main forum where the private sector and state and city administrations interact is the Udyog Bandhu (friends of industry) program launched in 2011 by the Infrastructure and Industrial Development Department. Udyog Bandhu aims to improve industrial investment in UP. It has set up an online portal called Nivesh Mitra for obtaining clearances for new firms. It also provides a forum to meet with relevant authorities at the district level in monthly meetings, as well as at the state level through biannual meetings. Interviews with private-sector stakeholders revealed that at the district level the forum is largely ineffective, as decision-makers only participate in the high-powered meetings at the state level.

[20] Interview with KDA, March 16, 2015.
[21] KNN Budget 2013-14.
[22] KNN Budget, 2004, 2011.

ANALYSIS: KEY DETERMINANTS OF KANPUR'S COMPETITIVENESS

This section looks at how the various levels of government, the private sector and other stakeholders collaborated, and their impact on Kanpur's competitiveness. It focuses on proactive interventions—within the set of contextual factors listed in the previous section—made by various stakeholders to improve Kanpur's competitiveness. Three factors are examined by looking at who were the main actors, what were their efforts, and the impact of those efforts on the city as a whole:

1. Strategic alliances between the local private sector and the state to access relevant industrial infrastructure.
2. Active market and product diversification to break out of the stagnant local context.
3. Limited but effective innovation and investment in human capital.

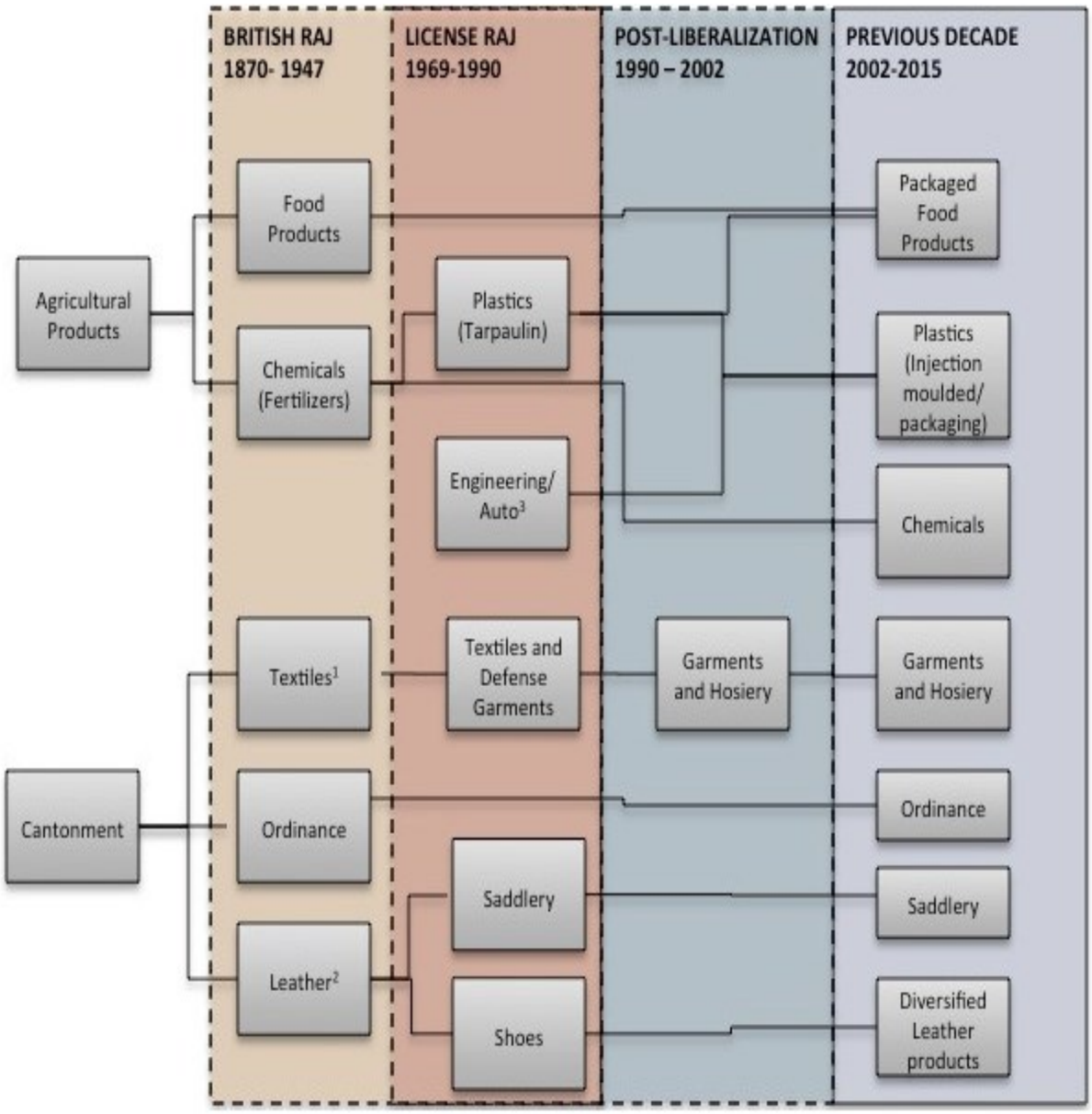
Factor 1: Strategic alliances between the local private sector and the state to access relevant industrial infrastructure

In the absence of city-level resources and significant decision-making power, and with a passive state, the onus has fallen largely on the local private sector to undertake initiatives to access public investment in critical industrial infrastructure and to enhance competitiveness. Given the nature of industry in Kanpur, particularly with the disappearance of most, if not all, large-scale industry, the role of industry associations and groupings is key. This section explores the nature of industry in Kanpur, how it has opportunistically formed linkages with the state government to obtain the required infrastructure, and how this has impacted the city.

What did Kanpur's industry look like?

The trajectory of the private sector in Kanpur has been heavily influenced by its location in the agrarian belt and its past, when it served the procurement needs of initially the British and later the Indian government defense industry for leather and textile products (Figure 2). During the License Raj, the leather and textile industries were nationalized and focused primarily on producing low-quality goods—shoes, saddlery, and garments—serving the defense industry, and had little incentive to seek better technology, skills, or new markets.

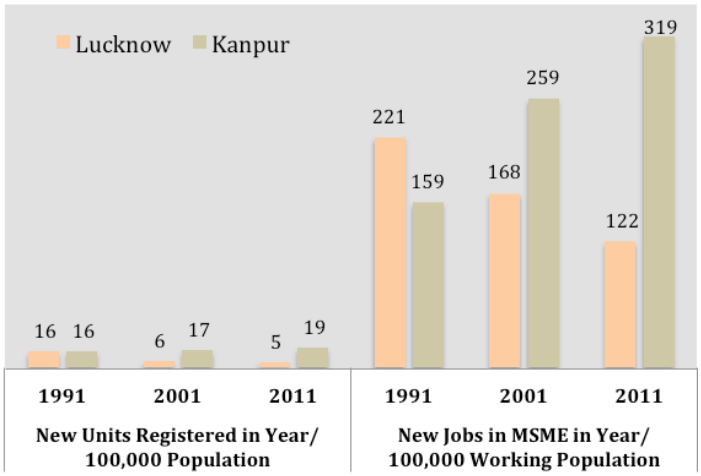
Figure 2: Sector-wise development of industry in Kanpur



[1] Textile mills nationalized in the 1960s and closed in the 1990s.
[2] Leather products manufactured by TAFCO, closed in the 1980s.
[3] LML, a scooter manufacturing plant, established in the 1980s as a JV with Piaggio and closed in 2002.

Post-liberalization, with the shock of the closure of the nationalized textile mills and increased competition, the city's economy became dominated by MSMEs (Figure 3), many with limited skills and technology, as they looked to find new markets and new products in their sectors. In the following years, not only did Kanpur have a higher level of MSME formation than Lucknow, but these MSMEs also became a larger source of new jobs in Kanpur. Interviews suggest that since the nationalized industries had not upgraded skills or technology, most of the MSMEs were started by low-skilled employees let go by the large firms.[23]

Figure 3: MSME unit registration and jobs in Kanpur and Lucknow



Source: Census, India and MSME-DI, Lucknow and Kanpur.

The private sector has continued to focus on leather, garments and hosiery, prepackaged food products, plastics and chemicals, and engineering with mixed results.

a. **Leather**: The leather sector in Kanpur experienced a strong growth trajectory, helped by a tenfold increase in global trade in leather products, from US$16 billion in 1985 to US$160 billion in 2010. Kanpur, with sales exceeding US$660 million in 2006-07, was the largest leather and footwear cluster in India, followed by Kolkata (US$506 million), Chennai (US$500 million) and Agra (US$256 million).[24] Turnover at the state level has doubled over the past four years from Rs.4,400 crores[25] to Rs.9,500 crores.[26] Competitive strengths in the availability of raw materials, particularly buffalo leather, a large pool of cheap semi-skilled manpower, and marketing, have helped Kanpur's leather industry diversify its product range. Kanpur has improved its position from being an exporter of tanned leather to its current position as a center for finished leather, safety and fashion footwear, saddlery, leather goods, and most recently, upholstery. While no reliable numbers are available on the number and size of firms in the city, it is estimated that there are more than 400 small and medium-sized tanneries in Kanpur, and 10-15 large tanneries. Besides the small and medium-sized tanneries located in the industrial parks in Jajmau, Banthar and Unnao, there are at least 1,000 units that produce open footwear,[27] and belts and shoes, and operate from residential neighborhoods.[28]
b. **Garments and hosiery**: Many employees who lost their jobs when the large textile and defense garments firms closed moved into small-scale hosiery manufacturing or readymade garments production using the skills they had acquired. While the knitted garments market has increased worldwide, low investment[29] and limited skills resulted in poor product quality in Kanpur compared with other textile and apparel producing centers, such as Ludhiana, Tirupur and Kolkata. As a result, Kanpur's hosiery manufacturers have concentrated on producing basic products (e.g., innerwear and towels), with little scope for product differentiation. Most of the apparel production, especially cutting

[23] Interview with small leather and garments manufacturers, December, 2014 and January, 2015.
[24] CRISIL. 2014. *Data Collection for Uttar Pradesh: Private Sector Development Policy*, unpublished report prepared for World Bank, 2014.
[25] 1 crore = 10,000,000.
[26] Data obtained from the Indian Council of Leather Exports.
[27] Chappals or sandals.
[28] IL&FS. 2006. *Diagnostic Study of Kanpur Leather Cluster,* IL&FS Cluster Development Initiative. December 2006.
[29] Most hosiery units in Kanpur use knitting machinery that costs Rs.2 lacs per unit compared with the technologically superior machines used in Tirupur that cost Rs.25 lacs per unit.

and stitching, continues within the city. Almost all of the products produced in Kanpur are destined for neighboring markets in Bihar, Uttarakhand and Madhya Pradesh.

c. **Prepackaged food**: Kanpur's location in the agricultural hinterland of the upper Ganges gives it a natural advantage in the food industry. Kanpur used to be the major distribution center for wheat, spices, edible oil and pulses. This led to many small-scale industries such as bread-making, dairy products, confectionary, soaps, detergents and *jarda*[30] factories locating in Kanpur. Between 2008 and 2013, the industry grew by an average 8.4 percent per year.[31] The processed food industry has benefitted Kanpur as firms have become ancillaries to the large brands, and new brands are emerging from the city, including Goldie Masala, Mohini Tea, Ghadi detergent and Mayur Oil. While MSMEs continue to work from residential locations, some SMEs are located in industrial parks. Poor rural road connectivity, limited raw food material storage, and poor cold chain capacity were highlighted as major constraints—even for the firms located in industrial parks.[32]
d. **Plastics and chemicals:** The plastics and chemicals industry started as an ancillary to the fertilizer and textiles industries by providing bags for fertilizers, central cylinders for the textile mills, and tarpaulins for the defense sector. Plastics became an industry in its own right in the late 1980s and 1990s with the increased use of plastics in engineering and irrigation products, and later received a boost with the use of plastics in the food packaging industry. Most of the players in Kanpur continue to focus on low-tech products, initially supplying packaging to the *jarda* factories and subsequently to the prepackaged food industry. Recycling plastics is also emerging as an employment generator. Lohia Starlinger and Kanpur Plastipack are large firms that specialize in producing fiber-reinforced packaging for export. Local chemical manufacturing firms also supply the leather industry and have grown together with it.
e. **Engineering-based:** The engineering-based sector received a severe shock with the sudden closure of LML in 2002, as many ancillaries were left without a buyer.[33] The sector has looked for new markets with limited success. While auto manufacturing has increased in India, no new auto-manufacturing firms have moved to UP. The industry has also transitioned as most manufacturers, rather than working with many small component providers, now look for a limited number of solution-providers. Many firms have closed and the survivors are either serving local markets or looking to move to manufacturing hubs in other states.[34]

What did infrastructure support for Kanpur's industry look like?

Selected industry or business associations were able to tap into state support for industrial parks. For example, the Indian Industries Association (IIA) lobbied the state government in the mid-1990s to provide uninterrupted power supply in the Panki industrial area. They promised 100 percent revenue realization from the area and agreed to pay a higher rate for the electricity. Separate industrial feeders were set up in Panki limiting the power-cuts to just 1 hour per day, as opposed to 5-6 hours in the rest of the city.[35] Recently, a large leather industry association took the lead in forming a new industrial park, coordinating with the state government to identify the land, and independently starting land acquisition.[36] Both associations are composed of Kanpur's larger industries that can use their influence to access key decision-makers at the state level, especially during periods when political conditions are optimal (1997-2002 and 2012-now).

[30] Chewing tobacco product.
[31] Make in India, http://makeinindia.com/sector/food-processing/
[32] Interview with IIA. Parle, for example, has subcontracted manufacturing for several brands of biscuits.
[33] At its peak, LML/Piaggio produced between 20,000-30,000 scooters per month. LML, at closure, did not pay many of its suppliers for accounts due. LML restarted production in 2008, but only produces 4,000-5,000 units per month.
[34] JS Auto has transitioned into manufacturing passenger and goods carriers. The product is mainly sold in UP, Bihar, and Madhya Pradesh.
[35] Interview with leading industry association, January 22, 2015
[36] Interview with leading industry association and large private sector group, December 24, 2014

Smaller players found it far harder to connect with state-level authorities and tap into state resources.[37] Since smaller firms largely operate from the inner city or old industrial areas, low availability of city-level infrastructure has increased the costs of doing business. While 24-hour power supply is meant to be provided to the industrial areas (in practice the figure is about 22 hours), the rest of Kanpur only has power for 16 hours a day. Most small manufacturers in the garments, plastics and leather industry are located in the city, outside industrial areas, and face frequent power cuts. According to firms' estimates, even for non-intensive users of power in the saddlery industry, dependence on generators has increased the cost of electricity by 250 percent.[38] Bad transport infrastructure in the city also limits the benefits of smaller players moving to industrial estates, as skilled workers live in the inner city and do not have the means to travel to distant industrial estates.[39]

Alliances between the private sector and the state government were often short-sighted and limited, and failed to develop into a broad-based "growth coalition". In the context of social divisions, strategic alliances between the private sector and the state government for industrial parks were short-sighted and limited in scope, and did not translate into a broad-based "growth coalition" that would have facilitated city-level benefits or growth. Social divisions, including along religious and caste lines, limited opportunities for Kanpur's private sector to become better organized, preventing business and industry linkages and the formation of a unified private-sector voice.[40] In contrast, Coimbatore's business associations acted as advocates for the city and its business community at the state and central government levels, resulting in sustainable growth coalitions between local business associations and the state and central governments.

What was the impact on the city?

The economic impact on the city of these strategic alliances for infrastructure investment was limited because common sector- or economy-wide benefits were not factored in. While a few large industries and prominent business associations are able to convince the state government to invest in industrial support infrastructure, their scope is limited as these are often piecemeal benefits coming from ad hoc alliances that do not benefit industry at large. For instance, industrial feeders for electricity supply in the Panki area only benefitted the plastic packaging, auto and the very small steel parts industries, while the leather and apparel industries continued to suffer. On the issue of the tannery pollution in Jajmau, the leather industry was isolated and the larger industry associations did not present a unified voice to leverage interventions from the state government.[41] Moreover, there has been no concerted effort by industries to lobby for common benefits such as common testing and skill development centers.

In the long run, the absence of the city government from this growth alliance created challenges to competitiveness. The above-mentioned industry-state alliances were ad hoc and excluded city-level government bodies, resulting in unplanned development that further increased pressure on those bodies.[42] The alliances resulted in the sector-specific industrial parks/estates or industrial park infrastructure upgrades in areas located far from the city center with unreliable or non-existent public transport infrastructure. There was rarely provision for affordable/low-cost housing for workers or relevant public transport. Coordination with the KDA and the KNN in deciding the location and layout of industrial areas

[37] Interview with small industry associations, January 20, 2015 and December 23, 2014
[38] Interview with small leather goods manufacturer, December 19, 2014
[39] Interview with large garments manufacturers, December 23-24, 2014
[40] Interview with small leather manufacturer, February 2, 2015; small industry association head, January 26, 2015 and small manufacturers, December 23, 2014. This is particularly disturbing from the perspective of Ashutosh Varshney's study on communal violence and civil society in India, in which he notes that instances of communal violence are more likely to occur in cities when civic engagement, social or business, between religious groups are limited Varshney, Ashutosh. 2002. *Ethnic Conflict and Civic Strife: Hindus and Muslims in India.* Yale University Press.
[41] Interview with leather industry association, December 24, 2014
[42] Interview with the deputy mayor, March 18, 2015 and interview with KNN, February 16, 2015

was very limited.[43] This led to unplanned development in the areas around the industrial parks and eventually more pressure on the already fiscally weak KNN to provide essential services to workers in the area. After the first 20 years of operation, maintenance of industrial parks is the responsibility of the KNN. However, given the weak fiscal capacity of the KNN, maintenance work is often neglected.[44]

Limited city infrastructure means that smaller firms continue to operate from mixed commercial/residential neighborhoods, adversely impacting the livability of the city. The smaller firms are located in the city center where a skilled workforce is easily available but where infrastructure development remains limited. These firms are operating sweatshops in the middle of residential neighborhoods, with workers often living on the factory premises. This in turn has an impact on the livability of the city and deters highly skilled and technical workers required by the domestic industry. In recent livability rankings, Kanpur comes 49th out of 50 Indian cities.[45]

Factor 2: Active market and product diversification to break out of the stagnant local context

Over the past decade, the private sector in Kanpur has actively sought to diversify markets and products, reviving local industry that had previously been stuck in a stagnant local market with outdated products and technology. The leather industry has been a leader, connecting with global markets and diversifying products in line with demand from foreign buyers. Most of these connections have been autonomous with very little support from the state and central government. While local industry has grown with these linkages, the benefits are not industry-wide, and certainly not Kanpur-wide. The advances are typically made by larger industries and risk being short-lived and limited in impact without adequate support.

How did industries diversify their markets and products?

Leather and segments of the plastic packaging industry have managed to find linkages to global markets, driven by growing global demand. With the traditional quota-based markets dwindling, certain sectors began looking for markets abroad. Over the past decade, Kanpur's firms have focused on finding new markets for their products overseas. The leather industry, which had primarily focused on low value-added finished leather production, had seen margins in the domestic markets rapidly declining, and was most successful in finding new markets. While certain export linkages existed in the 1990s, international demand for leather steadily rose from the early 2000s onwards and was not significantly affected by the 2008-09 global financial crisis.[46] Larger leather firms in Kanpur initially found buyers, through international fairs and exhibitions, for finished leather and subsequently diversified into shoe uppers, leather accessories, dress shoes, leather garments and, more recently, upholstery. For instance, due to the increased costs of manufacturing safety footwear in Europe, Kanpur's high performing finished leather product manufacturers received more orders and requests for newer products. These companies were initially supported by global buyers with investment, technology and training.[47] The larger firms frequently subcontract smaller firms to meet client orders. Meanwhile, the plastics industry in Kanpur grew through a joint venture between the Lohia Group and Starlinger GmBH, and continued to supply bulk woven plastic packaging materials in the international market even after the partnership ended in 2000.[48] Former suppliers to the local LML plant, struggling after its closure, also saw an opportunity and adapted accordingly.

[43] Interview with the KDA, UPSIDC.
[44] In an interview, UPSIDC MD indicated that another reason for the poor maintenance of industrial parks could be that maintenance costs built into the lease agreements in industrial area are currently not reflecting actual costs.
[45] Livability index. 2013. http://competitiveness.in/wp-content/uploads/2012/01/Liveability_Index_2013.pdf
[46] Council for Leather Exports Report 2014.
[47] Interview with large leather manufacturer, December 22, 2014.
[48] Interview with large plastics manufacturer, January 30, 2015.

Changing customer preferences for pre-packaged food allowed the food industry and plastic-packaging industry to partner and serve a growing domestic market. A central location in the agrarian belt and a growing demand for pre-packaged foods allowed Kanpur's agro industry to leverage its locational advantage. Growth in the pre-packaged food industry presented an opportunity for many of the plastic-packaging manufacturers and over the past decade new brands such as Mohini Tea, Mayur Oil and Goldie Masala have emerged.

Exposure to export markets in the leather industry increased learning and translated into a renewed focus on the domestic market. While 90 percent of the leather market is focused on export,[49] the larger firms, such as Superhouse and Mirza Tanners, see domestic opportunities and are developing new products to meet domestic needs. Some manufacturers have been able to leverage their learning from serving the export market into creating their own brands. Mirza Tanners has created the Red Tape brand, which is now one of the largest casual and formal shoe suppliers in India. Homera Enterprises is making significant investments to position itself as a leather upholstery manufacturer serving foreign and domestic auto manufacturers.

In auto parts and injection molded plastics, where there is weak exogenous demand and few forward linkages, finding new markets has been risky and expensive. The injection-molded plastics and auto parts industry that grew as an ancillary to LML Autos faced a crisis when LML shut down in 2002 without paying its suppliers. A majority of the local suppliers and ancillaries eventually closed, while the survivors had to invest and diversify to find new markets. JS Auto, the largest sheet-metal supplier to LML, took substantial risks and invested heavily, producing passenger- and freight-carriers to serve UP and neighboring state markets and other low-income counties in Southeast Asia and Africa. Injection molded plastics providers are struggling, with no new auto manufacturers replacing LML in the state. Manufacturers located in other centers look for suppliers that are located close to the plants and are involved in the design process (as "solutions providers", not "parts providers"). Some injection molded plastics companies have diversified into making bottles and cans to meet growing domestic demand for consumables.

Industries that have remained focused on the local market are competing on price rather than quality. In the garment and hosiery industry, there are very few composite firms.[50] Furthermore, most of the firms are focused on producing low-cost, low-quality products that serve the local market in UP and neighboring states. Given that there is stiff domestic competition from Kolkata and Tiruppur, the industry looks to exploit cheap labor to produce larger volumes of goods.

While some firms succeeded in tapping into export markets, this failed to benefit the industry and city as a whole. Firms that were able to diversify in products and markets were the ones that were able to find "chance" investments for doing so, from their buyers or through family connections.[51] The benefits were limited to a few firms and rarely translated into industry-wide effects or spillovers. Furthermore, given the low level of education and the lack of a workforce skilled in management and commerce, most firms that transition from smaller to larger firms eventually seek to leave Kanpur.[52] Most large firms have established commercial headquarters outside Kanpur, mostly in the National Capital Region (NCR) areas around Delhi, with only manufacturing based in Kanpur. In some cases, manufacturing plants have also moved out of Kanpur to neighboring districts or states with more attractive government policies.

[49] Interview with large leather manufacturers, December 2014.
[50] Interview with large garments manufacturer, December 24, 2014
[51] Interview with small leather manufacturer, December 19, 2014; Interview with large leather manufacturer, December 22, 2014
[52] Large plastics and packaged food manufacturers all have their corporate offices located in the NCR region. Large leather manufacturers have moved their plants to the adjoining Unnao district where they were provided land by the state government.

How were firms supported by the government/public sector?

Some government programs supported access to foreign markets but take-up has been low due to the difficult business environment, and actual implementation has been largely driven by ad hoc deals. While the central and state governments offered credit-guarantee, market-access, and freight-support schemes, most business-owners interviewed had not applied for support under these schemes, saying that their effectiveness was limited due to bureaucratic delays and complicated processes. For instance, some credit schemes require firms to make significant infrastructure investments and recover their investment from the state, deterring smaller businesses, as trust in the bureaucracy is very low.[53]

Most players developed linkages to foreign buyers through individual or collective private-sector efforts. While government schemes had limited impact, individual entrepreneurship yielded more results. Most businessmen interviewed developed links to foreign buyers through individual outreach or family connections. A large number of businessmen simply wrote to buyers abroad offering their products, while many others financed visits to important industry or trade fairs. Once they had found a buyer, they were able to build other connections and diversify their products according to the needs of the buyers. Word-of-mouth, with one Kanpur-based firm referring a foreign buyer to another firm or vice versa, also helped to create linkages.[54] The dominance of particular caste and ethnic groups in some industries also helped these knowledge-sharing networks to evolve.

Key interventions to enhance market connectivity came from programs of the central government to improve nationwide connectivity and private-sector logistics investments. The establishment of the Golden Quadrilateral national highway NH2 connecting Kanpur with Delhi and Kolkata greatly improved connectivity. The private logistics platform set up in the Panki industrial area in 2011 was a critical investment for Kanpur's connectivity. This provided freight services connected to the railway, though once again its success was largely due to the closeness of the investor to the right decision-making authorities.

What was the impact on the city?

Compliance with environmental norms and standards improved due to pressure from global buyers. Imposition of environmental and social standards on imported leather, and growing consumer awareness in Western countries, which are the main importers of leather products, have forced the industry to follow better environmental sustainability and social practices. Interviewees talked about inspection of premises by buyers, as well as the benefits of obtaining certificate of standards. This has led to observable improvements in working conditions in the leather sector, as well as a reduction in the use of harmful chemicals, although many firms supplying foreign buyers outsource work to smaller firms that may not be compliant. Small firms seek environmental and quality certification to convince global buyers of product quality and production standards.[55]

Technology and skill transfers from foreign clients/buyers to Kanpur were also apparent in the leather and plastics sectors. Firms moved up the value chain with inputs from foreign markets. These inputs could be "soft" such as standards and quality control forcing the manufacturer to invest in machinery or labor, or "hard" such as transfers of machinery, capital investment and training. The leading leather manufacturers benefitted from hard transfers of machinery and capital from European investors. Lohia-Starlinger, the largest plastic-packaging and engineering firm, began as a joint venture between the Lohia Group, which manufactured cones for textile weaving machines, and an Austrian firm, Starlinger. Soft transfers have been in the form of standards and quality, enabling smaller firms to link with global buyers.

[53] Interview with small leather manufacturer, December 19, 2014.
[54] Interview with small leather manufacturer, December 19, 2014.
[55] Interview with small leather manufacturer, December 19, 2014.

One of the small leather firms visited received specifications for manufacturing shoes for the Caterpillar safety shoes label, which were then finished and branded elsewhere.[56]

While diversification in markets and products is changing industry in Kanpur, the wider benefits are currently limited. New markets are behind the revival of medium and small-scale industries in Kanpur over the past decade. According to estimates of some industrialists, about 25 percent of such firms have been able to grow into larger firms through their linkages to export markets.[57] While this brings obvious benefits in terms of jobs and revenues, more needs to be done to ensure that the benefits are spread more evenly. Interviews with large industries reveal that the investment required for them to transition and diversify mostly came from family sources or through the investment of a foreign buyer (either in terms of capital or technology). Smaller firms unable to access such investment were mostly unable to compete or continued to manufacture low-cost, low value-added products.

Smaller manufacturers bear the brunt of sub-standard infrastructure, making it difficult to compete with larger firms. Lack of adequate transport has squeezed margins in the garments industry, as raw materials now have to be shipped in from locations in Gujarat, Maharashtra and Tamil Nadu.[58] In injection-molded plastics, manufacturers are absorbing the cost of shipping their products to manufacturers to maintain their price competitiveness.[59] Lack of an airport makes it difficult to attract high-end clientele, with one large manufacturer expressing embarrassment in bringing clients to Kanpur due to its bad connectivity. Recent private sector initiatives in servicing freightage have helped, but lack of adequate infrastructure remains a problem.

Factor 3: Limited but effective innovation and human capital investment

Limited coordination between academia/research institutions and the private sector has restricted the ability of Kanpur to adapt to a new globally competitive environment. However, this could point to a way forward in reviving Kanpur's industry, if leveraged with its key sectoral strengths. The case of Coimbatore shows the benefits of close industry-academia linkages for human capital development. Coimbatore's family engineering firms have established technical colleges, schools and hospitals through corporate trusts and foundations, maintaining collaborative relationships and mutually-beneficial training arrangements. As a result, industry-academia linkages in Coimbatore are exceptionally strong and directly influence curriculum development. Recently, some city-level players in Kanpur tried to increase linkages between industry and educational institutes, with individual firms reaping the benefits of investment in research and training.

What is the nature of academic institutions in the city?

Kanpur is one of the largest educational centers in northern India, hosting some 50 institutes of higher education, including internationally renowned institutes of research and training. Kanpur is home to several institutes for technical education and training, including a branch of the Indian Institute of Technology (IIT), an internationally renowned institute of research and training. It has three universities offering a variety of courses in sciences, commerce and the arts, around 20 colleges of engineering, and five institutions for medical sciences training.[60] With the presence of several institutes for secondary and higher education, Kanpur attracts students from across India. The presence of a large numbers of higher

[56] Interview with small leather manufacturer, December 19, 2014.
[57] Interview with Council of Leather Exports, December 19, 2014.
[58] Interview with small garments manufacturer, December 24, 2014.
[59] Interview with an injection-molded plastics supplier.
[60] Aside from the IIT, the city hosts the Harcourt-Butler Technological Institute (HBTI), a nationally renowned engineering college, which used to be a technical training institute established by the British to support the manufacturing activities in the city; a government polytechnic; and an agricultural college. Government institutes for training chartered accountants and company secretaries are also located in the city. Most of the newer technical training institutes are private-sector owned. Leading private sector groups, such as the JK Group and Jaipuria Group, have also established vocational training institutions.

and technical training institutions considered desirable by students has spawned an educational "coaching" industry, which provides support to students taking entrance exams to enroll in these institutions.

However, academic institutes for training do not focus on local or regional development; IITs are exporters of talent. The IIT is the premier educational institution in India, with a curriculum designed to create a national corps of engineers, drawing students from across the country. There is no focus on linking the locational advantages of an IIT with regional development. Graduates from IITs are considered among the best in their fields and command high salaried jobs in large and multinational firms nationally and internationally. Discussions with industry and a review of the placement records at IIT Kanpur and HBTI reveal that few graduates are employed in Kanpur. In recent years, local technical training institutes such as the JK-ITI and post-graduate management institutes such as GHS-IMR[61] have been more successful in building skills that are relevant and absorbed by local industry.

Industry-specific institutes are also present in Kanpur and industry associations have set up their own training centers. An extension center of the Central Leather Research Institute (CLRI) was established in Kanpur in 1963 to support the local leather industry. While the institute's main office in Chennai provides testing facilities, research support and training in best practices, the Kanpur branch's role is limited to carrying out periodic research projects at the request of the government. Large private sector firms and industry associations have also invested in sector-specific training and research. In the leather park in Banthar, Unnao, around 15 km outside Kanpur city limits, the private sector is taking the initiative in setting up training centers to create a skilled workforce. This is being done on land provided by state-level authorities while the costs will be covered by the private sector.

How did the private sector utilize the presence of educational institutions?

There is a mismatch between the low tech-base of industries and the high-tech focus of the main institutes, making academia-industry synergies less obvious. Most of the research and incubation that is carried out at the institutions focuses on high-tech industries. For instance, the incubation center promoted a new nano-material to the textile industry for sports clothing. In contrast, most industry in Kanpur operates on a low-tech basis. As such, there is a major disconnect between the focus of these institutions and the value-added they could provide to the local industry. The curricula offered at the premier educational institutions have little relevance to the needs of the private sector in Kanpur.[62]

Recent sector- or firm-specific technical training and research has played a role, albeit limited. Technical training institutions established by the private sector have had recognizable benefits, but these are limited to a specific firm or sector. Lohia Group's Technical Training and Research Center has specialized skill-training courses for plastics processing technologies and works closely with its production facility to design courses, as well as conduct research. Most trainees are absorbed by the Lohia Group's production facilities.[63] The JK Group also established the Center for Technical Training in 2011 for training technicians and mechanical fitters, who are then largely absorbed into local industry.[64]

In recent years, Kanpur has tried to increase linkages between industry and educational institutes, with some success. The district magistrate requested IIT Kanpur to open a business advisory center in the city, but this has not materialized because of staffing issues. IIT Kanpur has developed close links with The Industrial Entrepreneurs (TIE) to bring together the institute and industry on a biannual basis, and holds annual entrepreneurship training for 11th grade students. A three-year-old program provides engineering students on-the-job training with some of the larger private sector firms. Discussions with the IIT Kanpur

[61] Both JK-ITI and GHS-IMR are corporate social responsibility initiatives of the Singhania family that owns the JK Group.
[62] Interview with large leather manufacturer, December 24, 2014, large garments manufacturer, December 22, 2014, educational institution, January 22, 2015.
[63] Interview with large plastics manufacturer, January 29, 2015.
[64] Interview with large industry, January 27, 2015.

Incubation Center revealed a new initiative to combine the research facilities of IIT Kanpur, Harcourt-Butler Technological Institute (HBTI) and the Perfume Research Center in Kannauj to develop a common facility center.[65] The consortium is in discussions with UPSIDC to find a location for the center. Sector-specific institutes report greater linkages to the private sector, with the latter employing trainees from these institutes.[66]

What was the impact on the city?

Sector- or firm-specific initiatives have yielded results, but have not translated into sustainable bridges. Recent vocational training initiatives have allowed certain large-scale firms to have sustained access to skilled manpower, but these have not yielded industry-wide benefits, as they have so far remained tied to specific firms. CLRI and IIT Kanpur have been involved in finding solutions to the Ganga pollution problem, and have submitted various reports to the state and central governments. However, their recommendations remain unimplemented.[67] Recent efforts by the private sector and IIT Kanpur to collaborate in training students have yielded mixed results: while it has provided solutions in some areas, the technology level mismatch and incompatible expectations between firms and academia remain a challenge. For instance, while the IIT is not a quality certification institute, one large local hosiery manufacturer that had tested the density of its fiber at the IIT claimed in its promotional material that its product quality was "IIT certified."[68]

With better opportunities elsewhere and limited demand for their skills, highly skilled workers seek alternative centers of employment outside Kanpur. Wages in Kanpur do not match the expectations of highly skilled graduates of the city's first-class technical training institutions. Until recently, SMEs in Kanpur focused on remaining price competitive, producing low-cost, low-value added goods for a limited market. Historically, they have invested very little in the development of "human capital" and resources for workers. Industries have exploited loopholes in labor laws to hire non-contracted workers at very low wages and irregular working conditions. Bad infrastructure and pollution undermine the livability of the city,[69] leading graduates to seek alternative centers.

The private sector in Kanpur has placed less importance on education, training and industry-academia linkages than other economically more successful industrial centers, such as Coimbatore. As seen in the case study on Coimbatore, the private sector proactively collaborated with educational institutions, or set up their own degree colleges, to design curricula and develop skills relevant to the private sector. In Kanpur, however, the private sector has had little or no collaboration with the educational institutions, whose curricula and research are out of step with the needs of local industry. Industrialists in Coimbatore diversified from existing businesses into auto and engineering parts, and benefitted from the state attracting foreign auto manufacturers. Many of these industrialists represented existing capital from large businesses. In Kanpur, however, private large-scale businesses moved to other centers or stopped production, leaving behind small and medium manufacturers that have only recently started growing again.[70]

Inability of the city to retain and attract talent leads to a vicious circle where the locational advantages of first-class educational institutions remain underutilized. Absence of large-scale industry in the city, uncompetitive wages and poor living standards mean that locally-trained technical talent seeks

[65] Interview with SIDBI IIT Innovation and Incubation Center, January 22, 2015.
[66] Placement statistics reveal that Mirza and Superhouse regularly employ trainees from the Government Leather Institute.
[67] Interview with leather industry association, February 1, 2015.
[68] Interview with SIDBI IIT Innovation and Incubation Center, January 22, 2015.
[69] As noted earlier, Kanpur is one of the least livable centers in India, ranking it 49th in a nationwide study of 50 urban centers.
[70] Large family-owned businesses moved away in the late 1980s and early 1990s, with the JK Group setting up manufacturing units in Rajasthan and Maharashtra, while the Jaipuria Group sold industrial assets and started a private educational enterprise across India. LML halted production in 2002.

work in firms outside Kanpur, or even India. Furthermore, students from Kanpur who receive higher education elsewhere rarely return to the city.

Industry has to look elsewhere for technology upgrades, as well as testing facilities. No local inputs in innovation, quality enhancement or process efficiency lead firms to compete with each other to produce the same products for the same market, leading to a race to the bottom. Most manufacturers have to send their products to labs in Delhi for testing and certification in the absence of a competent local laboratory.

CONCLUSIONS AND LESSONS FOR OTHER CITIES

The lagging growth trajectory of Kanpur needs to be seen in the state and national contexts that has affected all cities in India and UP respectively, as well as the specific national-level and state-level factors that have affected Kanpur specifically. Kanpur was particularly affected by three factors. First, Kanpur's economy was adversely affected by the economic liberalization initiated in 1991 and the closure of large mills and, unlike most other Tier 1 or Tier 2 cities, Kanpur entered a prolonged decline (until 2004). Second, while the city did benefit from JnNURM support during most of its fragile recovery starting in 2005, the lack of adequate fiscal capacity to meet city-level co-financing requirements under the scheme limited the extent of its access to infrastructure programs. Compared with economically more successful cities, Kanpur's investment spending remained very low: the low share of transfers to the city as part of total state financing reflected limited devolution, while the low level of transfers also reflected the low per capita income in the state, resulting in particularly low levels of transfers to the city. Third, the completion of the Delhi-Kolkata segment (in 2008) of the GQ highway network has facilitated Kanpur's recovery by providing improved connectivity and market accessibility for its manufacturing firms.

Comparing Kanpur and Coimbatore, the fragmentation of the private sector and the local political economy in Kanpur, as opposed to greater social cohesion and cross-membership of industry associations in Coimbatore, led to different growth trajectories.[71] City-level proactive interventions in three areas were analyzed in detail in Kanpur. First, strategic alliances between the local private sector and state-level authorities were critical in the development of industrial infrastructure. In Kanpur, small groups of firms or selected business associations were able to tap into state support for industrial parks. However, the economic impact on the city of these alliances was limited because common sector- or economy-wide benefits were not factored in. In Kanpur, alliances between the local private sector and the state were temporary (exigent on conducive political economy conditions) and limited in scope. In contrast, the local private sector in Coimbatore, being well-organized and benefitting from cross-membership across associations, successfully attracted wholly privately-developed industrial infrastructure and—in some cases—managed to establish long-term institutionalized collaboration with the state, in the context of a comparatively stable political context. Second, some segments in the Kanpur economy were able to connect to global markets and diversify, with the support of foreign buyers, mostly without city/state/central government support. In Coimbatore, local industry associations and the Chamber of Commerce played a larger role in helping firms to diversify their products and markets, thereby enhancing the impact on the city's economy. Third, while major educational and training institutions remained inadequately utilized, the few firms in Kanpur that have made connections with research and training have used this as a cornerstone of growth. In Coimbatore, close industry-academia linkages, based on a history of direct intervention by the local private sector in establishing relevant technical colleges, schools and hospitals, are a central pillar of Coimbatore's economic success.

[71] See World Bank. 2015. *Competitive cities knowledge base: appendices to six case studies of economically successful cities.* World Bank: Washington, D.C.

The "growth coalitions" that were a common feature across the six economically successful cities analyzed elsewhere diverge from Kanpur's ad hoc alliances between narrowly organized private firms and the state, with detrimental consequences. According to the World Bank Groups' report on *Competitive Cities for Jobs and Growth*, "no single formula for city success has been observed, but rather a combination of well-thought-out responses to specific local circumstances."[72] The successful cities used the full scope and capacity of the city administration, created growth coalitions and established linkages with other levels of government and neighboring jurisdictions. Private firms, business associations, and other stakeholder groups were involved in the implementation of their city economic development strategies and interventions, though not to the same extent in all cities. Their involvement included, but was not limited to, providing financial and in-kind resources, acting as the city's public champions, collaborating with educational institutions to train workers and design adequate programs, and in some cases—most dramatically in Coimbatore—actually led several of the local development efforts. In Kanpur, the private sector operated within a local socio-political context that influenced the outcomes of the interventions made by it, and in some cases this impeded economic development. Social and political fragmentation of the private sector creates challenges for developing common resources. Poorer sections of the population who constitute the working class find little or no voice in growth coalitions, creating challenges for urban and industrial park development, as well as adversely impacting the quality of life. Lastly, despite the presence of technical training institutes and a proactive private sector, these "ingredients" of city success have not been properly used in Kanpur due to the absence of a local coordinating body.

From these lessons and the contrast with Coimbatore, some insights emerge as to what city-level initiatives may improve the prospects for Kanpur and other cities facing similar conditions, factors and challenges:

1. **Widening the membership of industry associations and facilitating cross-association membership.** Kanpur's socio-political history resulted in a fragmented private sector. However, the private sector will have to overcome these obstacles if it is to become a stronger voice in the state and ensure that state-led investments or state co-financing in industrial infrastructure meet the needs of firms.
2. **Broadening the coalitions that seek strategic alliances with the state to ensure more institutionalized benefits.** While ad hoc and narrow alliances have provided some benefits in terms of industrial infrastructure, other semi-public goods (such a training, research and testing facilities) are likely to require a broader base to facilitate this type of institutional development.
3. **Establishing relevant local academic/training institutions.** The presence of major educational and training institutions remains inadequately utilized in Kanpur, while the few firms that have made connections with research and training have used these as a cornerstone of growth. While the gap between Kanpur's first-class academic institutions and largely low-tech industry may not be easy to overcome, the example of Coimbatore shows that it can pay off for firms to invest in local academic/training institutes.

The local private sector can thus play an important role in re-starting economic development efforts in Kanpur, but by itself may only achieve limited results. Kanpur's leather sector was able to sustain itself and grow by accessing global markets. These linkages changed local business practices by ensuring better compliance with environmental and labor regulations (although firms routinely outsource work to smaller firms that may not comply). Global markets also fostered innovation through transfers of technology and knowledge, which local firms leveraged to attain competitive advantages. However, the private sector remains dependent on local government actors for the effective provision of public and semi-public goods that are essential to share the full potential of these opportunities more widely, such as market

[72] Kilroy, Austin, Megha Mukim, Stefano Negri. 2015. *Competitive cities for jobs and growth: what, who, and how*, Washington, D.C.: World Bank Group. www.worldbank.org/competitivecities

access infrastructure, commuting services and infrastructure for workers, affordable housing, and planning and investment that can improve the livability of the city.

For Kanpur to play its role in Uttar Pradesh's ambitious development targets, the central and state governments could:

1. **Increase transfers to the Kanpur Nagar Nigam, first to allow it to cover the costs of the maintenance roles assigned to it and, over time and with increasing ULB capacity, to allow it to fulfil its other allocated functions.** With the municipal government disempowered, there is no voice for poorer sections of the population in decision-making processes. The industrial parks/estates that were established by local industry-state alliances have limited longer-term benefits when not paired with supporting infrastructure for workers and city-level (government) capacity for maintenance.
2. **Place the burden of industrial park location decisions, land purchases, and park design and operation on those best placed to undertake them and navigate the local political economy of implementation, namely the future occupiers of the park**.[73] Experience from industrial park programs globally, and in India in particular, suggests that programs that take into account the needs of the private sector, on location and design in particular, but also local political economy conditions, are more likely to attract investment and be self-sustaining. This is the case in and around Coimbatore, where several industrial parks have been built through the Scheme for Industrial Textiles Parks (SITP) and other similar schemes, which put the entrepreneurs in charge, with financial support from the government and technical support from a dedicated project management agencies. Moreover, Coimbatore has also seen successful park development that was purely private-sector led. In contrast, park projects that have been only government-led, with little or no private sector input, as was often the case in Kanpur, have generally resulted in low investment and a limited ability to adapt to business needs and maintain adequate levels of maintenance.
3. **Facilitate public investments that increase the quality of life in the city.** Low quality of life makes it harder to attract skilled, technical and entrepreneurial talent from outside the city. It also leads to graduates trained at IIT Kanpur—the city's premier and globally renowned educational institution—leaving the city on completion of their training.

While Kanpur's recent economic recovery provides hope, it remains fragile. The recent and hard fought recovery of Kanpur's SMEs can largely be explained by their fragmented ad hoc initiatives over the past decade to form linkages with state authorities on one side and foreign markets on the other. However, the narrow scope and fragility of these alliances present a major challenge to the city's economic prospects, as reflected in Kanpur's slower growth rate in the most recent period compared with its peers. Kanpur's future will hinge on the ability of all stakeholders involved fostering the formation of more broad-based growth coalitions and linkages, in order to mobilize the public and semi-public goods to translate the city's potential into wider, stronger, and more sustainable economic benefits.

[73] Saleman, Yannick; Luke Jordan. 2014. *The Implementation of Industrial Parks: Some Lessons Learned in India.* World Bank Policy Research Working Papers Series, No. 6799. World Bank. March 2014.

Annex 1: List of interviewees

1. List of Public Sector Interviewees

Type of Organization	Name of Organization	Name of Interviewee(s)/ Position
Urban Local Body	Kanpur Nagar Nigam (KNN)	Umesh Pratap Singh/Municipal Commissioner
		Haji Md. Sohail/ Deputy Mayor
City Development Authority	Kanpur Development Authority (KDA)	Jayshree Bhoj
State Level Administration	Regional Commissioner	Md. Ifterkharuddin/ Regional Commissioner
District Administration	District Magistrate	Roshan Jacob/District Magistrate
State-level Agency	Uttar Pradesh State Industrial Development Corporation (UPSIDC)	Manoj Singh,/Managing Director
State-level Agency	Directorate of Industries (DI)	Venkateshwar Lu,/Chairman
State-level Agency	Uttar Pradesh Jal Nigam (UPJN)	Rakesh Kumar/Project Manager, Ganga Pollution Control Unit (GPCU)
State-level Agency	Uttar Pradesh Pollution Control Board (UPCB)	T.U. Khan/Regional Officer
		Shanu/Project Manager
National Agency	Micro, Small and Medium Enterprises (MSME) – Development Institute	Sanjay Chawla/ Regional Head
Elected Representative	Former Member of Parliament, Kanpur	Subhashini Ali

2. List of Private Sector Interviewees

Sector	Type of Organization	Name of Interviewee(s)/Firm
Leather	Industry Association	O.P. Pandey/ Council of Leather Exporters (CLE) RJ Jalan/CLE Taj Alam/ UP Leather Industries Association Me. Rizwan/ UP Leather Industries Association
	Small Leather Manufacturer	Md. Nadeem/ Shariq Tannery
	Small Leather Manufacturer	Md. Afzal/ Saddle Manufacturer
	Large Leather Manufacturer	Mukhtar-ul-Amin/ Superhouse Group
	Large Leather Manufacturer	Md..Rizwan/ Homera Industries
	Small Leather Manufacturer	Rehan/ Star Tanneries
Plastics	Medium Plastic Manufacturer	Manoj Agarwal/Kanpur Plastic Pak
	Large Plastic Manufacturer	Raj Kumar Lohia/ Lohia Group

	Medium Plastic Manufacturer	Sunil Vaish/Falcon Plastics
Garments/Textile	Large Garments Manufacturer	Balram Narula/Jet Knitwear
	Small Garments Manufacturer	Sunil/Rays Garments
	Medium Garments Manufacturer	Najam Hamraaz/Hamraaz Group
	Small Textile Manufacturer	Subodh Prahladika/Textile Parachute Cord manufacturer
Auto	Medium Auto Manufacturer	Suresh Puri/JS Auto
	Large Auto Manufacturer	Deepak Singhania/ LML Autos
Various	Industry Association	Umang Agarwal/ Federation of Industries and Traders Association (FITA) Focus Group Discussion/ FITA
	Industry Association	A.K. Sinha/ Merchant Chamber of Commerce
	Large Industry	A.K. Saraogi/ JK Group
	Industry Association	Ladli Prasad/ Laghu Udyog Sangthan
	Industry Association	Manoj Banka/ Provincial Industries Association
	Industry Association	Naveen Khanna/Indian Industries Association (IIA) Sunil Vaish/Indian Industries Association (IIA) Agarwal, Indian Industries Association(IIA)
Educational Institutions	Indian Institute of Technology	B.V. Phani/ SIDBI Innovation and Incubation Center
	Gaur Hari Singhania Institute of Management Research (GHS-IMR)	Mr. Jagwani/Placement Officer