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ECONOMIC GROWTH OF THE MUMBAI METROPOLITAN REGION

SUM II: INDIA URBAN INITIATIVES

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April 2006
UI Project 07765

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ECONOMIC GROWTH OF THE MUMBAI METROPOLITAN REGION

INTRODUCTION AND SUMMARY

Introduction

In 2003, Bombay First and McKinsey & Company published a report offering a vision for transforming Mumbai into a world class city, developed through a collaborative process with Mumbai's business leadership.

The Government of Maharashtra then established an interagency Task Force, with a strong Citizens Advisory Group, to design and implement a strategy that would elaborate the vision and translate it into reality. The task force operates through five subgroups: strategic planning, housing, economic growth, physical infrastructure, social infrastructure and governance. This report was prepared for the subgroup on economic growth. It offers an analysis of conditions and trends in the economy of the Mumbai Metropolitan Region (MMR) and offers recommendations for actions to remove barriers and stimulate growth in key economic sectors.

In 2005, USAID commissioned Urban Institute and International City/County Management Association (ICMA) to conduct a study on rejuvenating economic growth of Mumbai Metropolitan Region (MMR) under the Sustainable Urban Management – II (SUM-II) Contract. Subsequently, ICMA commissioned ICRA Management Consulting Services (IMaCS) as a sub-consultant on this project.

Staff of ICRA Management Consulting Services were the primary authors of this report (A. Mahendra and Rashi Grover). However, G. Thomas Kingsley, of the Urban Institute, and Manju Ghodke, on assignment with the International City/County Management Association (ICMA) are co-authors; contributing substantive work in some sections and overall guidance. Ms. Ghodke spent six months full time working as an advisor to the Task Force while on sabbatical from Larsen & Toubro Ltd.

The consultants recognize that an effective strategy to promote economic growth involves two themes:

a) Improving the local investment climate; i.e. reducing the general costs of doing business in the city
b) Providing specialized support to key growth sectors

However, this report focuses on the second topic: supporting key growth sectors. This is to avoid duplication of work with that of other subgroups in the Task Force, which are working on broader programs needed to improve the investment climate (e.g., physical infrastructure, housing, and social infrastructure).

In this work, we take an "economic cluster" approach rather than one that focuses on traditional sectors. A traditional sectoral approach would look at the process of manufacturing a particular product individually. In contrast, the cluster approach recognizes that the manufacturing activities are themselves supported by a host of activities that occur in other sectors as conventionally defined.

As to its recommendations, this report focuses on opportunities related to key economic sectors and, as such does not attempt to cover all actions needed to spur economic growth in the region (many of which fall under the aegis of other subgroups). Particularly important in this regard are proposed programs in land reform and infrastructure provision (developed with World Bank support) and in workforce development. The workforce development report, being prepared as a companion to this one, is also supported by USAID (the Urban Institute is the lead author, with contributions from ICRA and ICMA).

This report was developed by:

1. Assembling and analyzing secondary data on the MMR and its economy from a variety of economic surveys and databases.
2. Reviewing a number of relevant reports and publications on economic change and development approaches (international, national, and Mumbai specific – see list of references in Annexure A)
3. Consulting national experts on economic development and, especially, on the key sectors selected as the focus of the work in Mumbai.
4. Interviewing professionals and industry experts (in both the private and public sectors) about the workings of the local economy and possible strategies and actions to promote growth.

Summary of Findings & Recommendations

1. Our analysis of GDP composition and growth trends for MMR's economy brings out the following:

Sector growth & share trends:

a) In recent years, the mainstay of MMR's economy has been the tertiary sector, which is also seen as the key driver of growth in most large metropolitan economies. The tertiary sector in MMR grew at a compound annual growth rate (CAGR) of 7.6% over the period 1993-94 to 2003-04 and its share increased from about 52.5% of total GDP in 1993-94 to 63.5% in 2003-04
b) The share of the secondary sector has been declining in the last 10 years (from about 44% of GDP in 1993-94 to 34% in 2003-04, though there are signs of revival in 2002-03 to 2003-04)
c) Despite this, the size of the secondary sector is still substantial and cannot be neglected in the overall economic context of MMR. MMR still contributes to 50% of Maharashtra's manufacturing GSDP and over 8% of India's manufacturing GDP and within MMR, Greater Mumbai accounts for about 60% of MMR's manufacturing GDDP

Trends in volatility of GDP:

d) An interesting feature of the economy of MMR and Maharashtra during the period FY94-FY04 is the volatility in year-on-year growth rates of GDP. MMR's GDP growth rate was negative in the years FY2000 and FY01 and even the growth rate of Maharashtra's GDP was negative in FY01
e) The secondary sector is one of the major contributors to the volatility and witnessed negative growth for three consecutive years (FY 2000 to FY02). Within the secondary sector, the following sub-sectors were the major under-performers during this period (figures in parenthesis give the negative growth rate vis-à-vis the preceding year):
   - Manufacturing (-17%), Construction (-6%) and Utilities (-13%) in FY 2000
   - Manufacturing (-9%) and Utilities (-12%) in FY02
f) "Manufacturing" grew at a CAGR of 3% (between FY94 to FY04) but there are signs of revival in the last two years (growth of about 15% per annum in FY04)

g) The tertiary sector's growth (CAGR of 7.6%) is relatively more consistent and is the reason for MMR's economic growth during these ten years period

Primary sector:

h) The primary sector contributes to a very small share to GDP (2.6% in 2003-04, reduced further from its already low share of 3.3% in 1993-94). The CAGR for this sector was about 3.4% over the period 1993-94 to 2003-04. The sector's share has been declining, especially from 2001-02 onwards

Implications:

i) Both the secondary and tertiary sectors will have to be given impetus to achieve 12-15% growth of MMR's economy on a sustainable basis
j) Within these broad sectors, there are clearly some sub-sectors that hold greater promise in terms of higher growth or greater employment generation potential and therefore these sectors should be focused on
k) While catalyzing economic growth, there is also the need for spreading out economic activities evenly throughout MMR and not just restrict it to Mumbai City

2. Going forward, a suggested overall vision for MMR is as follows:
   a) Enable economic growth of 12-15% per annum while ensuring even growth throughout MMR;
   b) Supplement this economic growth by facilitating superior quality of 'life' factors to the citizens of MMR; and
   c) Ensure equitable participation in economic growth by all segments of society.

3. It is worth emphasizing again that the recommended strategy to achieve this targeted rate of economic growth recognizes two central themes:

   - Improving the local investment climate; i.e. reducing the general costs of doing business in the metropolis.
   - Providing specialized support to key growth sectors

   Improving the local investment climate may be most important. As noted earlier, recommendations are offered in reports of other subgroups in the Task Force and others. The following topics are critical.

   - Providing adequate physical and social infrastructure
   - Creating an efficient land/property market,
   - Strengthening the system for workforce development (USAID is supporting a companion report on this topic)
   - Creating an effective regulatory environment (and reducing corruption),
   - Rationalizing the system of taxation
   - Improving access to market financial resources

4. This report concentrates on the second theme: providing specialized support to key growth sectors. It identifies two main groups of economic sectors to be targeted for achieving the above vision. The first includes the export-oriented sectors most likely to draw in resources from outside of the region and, therefore, contribute to overall growth. The second includes sectors that have the highest capacity to absorb labor.

5. To identify key growth sectors, we examined data on all economic activities in the region (presented in the individual sections that follow). Two factors were emphasized:
   a) Evidence of a high potential for future growth nationally
   b) Evidence of a strong competitive advantage for the sectors in the MMR

   National studies and experts were consulted to obtain evidence of growth potential. To rate local competitive advantage, we interviewed local industry experts and reviewed data on location quotients which show the comparative concentration of various industries locally. As a result of this research the following local sectors were identified in the key growth category:

   a) Information Technology (IT) and Information Technology Enabled Services (ITES)
   b) Media and Entertainment
   c) Biotechnology
   d) Financial Services
   e) Hospitality and Tourism
   f) High-end Manufacturing

   Key growth sectors provide jobs directly but, often more important they provide jobs indirectly through multiplier effects. Our analysis shows that two sectors deserve special attention because of their labor absorptive capacity (hospitality and tourism would also fit into this category, but it has already been selected as a key growth sector):

   g) Retail Trade
   h) Construction

   This report includes profiles (analysis and recommendations) for most of these sectors: IT/ITES, Media and Entertainment, Hospitality and Tourism, Biotechnology, Textiles (example approach to manufacturing) and Retail Trade. (As noted above, financial services is certainly a promising key growth sector for Mumbai. We do not profile it here only because a thorough analysis has already been done – see Bombay First, 2000). Each of the profiles covers:

   - Industry size & growth trends,
   - Critical Success Factors for the industry,
   - Maharashtra's current industry base,
   - Why Maharashtra/MMR and the impact of the industry on economic growth and employment opportunities, and
   - Interventions required to promote the industry.

6. The recommended overall approach to providing specialized support to these sectors entails the following types of interventions

   - Making special efforts to market and promote them nationally
   - Giving higher priority to specific land and infrastructure projects they need
   - Giving higher priority to reducing regulatory barriers most important to them
   - Working with Universities to provide special research and training programs that will bolster their competitive positons

- Providing subsidies where high payoffs are likely to be gained

Highlighted recommendations across sectors are as follows (more detailed recommendations are provided in the profiles later on in the report).

7. New, higher profile initiatives to market and promote Mumbai's advantages and potentials are needed in particular for IT/ITES, media and entertainment, tourism, biotech and high-end manufacturing. One way to increase the forcefulness and visibility of these efforts will be to engage private sector leaders in each of these fields and encourage them to play leading roles. For example, well-known figures in entertainment from Mumbai could have a powerful influence in securing greater market shares for the MMR in tourism as well as in their own sector. High-level officials in state and local governments, however, will of course also have to be involved.

8. The provision of land and infrastructure to support these sectors is already endorsed in Maharashtra policy documents. What is needed now is a more forceful effort to implement projects with the highest payoffs – a fast-tracking mode is called for. In the profile sections later in this report, priority is identified for: the provision of sizeable high quality facilities for IT/ITES, particularly in Navi Mumbai and Thane; upgrading studio space and facilities for the entertainment sector; key locations for biotech that emphasize the Mumbai-Pune corridor; new tourist destinations (including a Bollywood City, similary to Universal Studios, recreation centers, like Sentosa Island, a world class amusement park, like Disneyland) and an international convention center. Also, it must be remembered that physical infrastructure improvements throughout the region generally will be vital to creating attractive residential environments as needed to attract and retain a skilled work force in leading sectors. This means not only a significant improvement in the ease of commutation but also the development of efficiently planned integrated townships in the MMR outside of Greater Mumbai.

9. Recommendations for several of these sectors recognize the importance of notable further simplification and speed in the processes of gaining government approvals to set up new businesses and develop related land and infrastructure. Special windows with one-stop orientations warrant priority. (See sections on IT/ITES, biotech, textiles, and retail trade).

10. Our research has also identified the increasing importance given to *security* by entrepreneurs in many of these sectors. This means effective local police work, but even more important today, it means security with respect to intellectual property rights (IPR). MMR officials cannot assure the latter only by their own actions but they could assemble a cross-sector leadership team to press the case for more effective safeguards at the national level. (See more detailed discussion in the sections on IT/ITES, media/entertainment, and biotech). However, MMR leaders can do more within the region as well; for example, constituting a regional anti-piracy task force to carry out investigations, creating public awareness, promoting new digital technologies make it more difficult to break the rules.

11. Compared to other urban centers, the MMR is not enlisting its universities in support of economic development as well as it might. There needs to be an entrepreneurial effort to identify key needs and opportunities in individual key sectors and, then, to develop customized approaches to helping universities that are the best fit develop the new courses and research programs that are called for. Examples discussed later in this report include: a range of trainining courses needed to develop a high quality workforce in the media/entertainment industry; new research institutes and training to support biotech; creativity centers to stimulate new product designs in textiles.

12. Last but not least, the state government needs to build strong capabilities within the pertinent departments in collating accurate data and statistics at disaggregated industry level within the primary, secondary and tertiary sectors. Only then can meaningful analysis of the economy be undertaken and help the government in taking suitable policy decisions.

1. DESCRIPTION OF THE REGION

1.1 Location

The Mumbai Metropolitan Region (MMR) encompasses a total area of 4,355 sq. km and consists of the following administrative units:

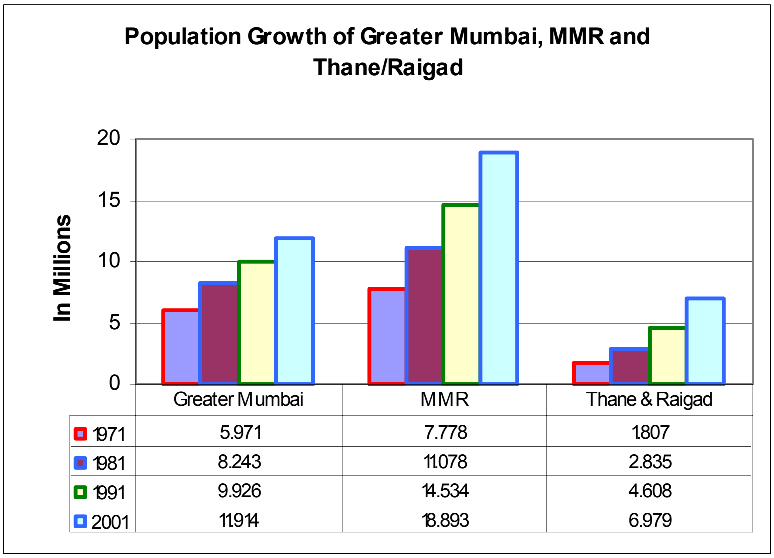
- Mumbai city district;
- Mumbai suburban district;
- Part of Thane district comprising:
  a) Thane, Kalyan, Bhiwandi and Ulhanagar tehsils; and
  b) Part of Vasai tehsil.
- Part of Raigad district comprising:
  a) Uran tehsil; and
  b) Part of Panvel, Karjat, Khalapur, Pen and Alibag tehsils.

The region consists of seven municipal corporations (Greater Mumbai, Thane, Kalyan-Dombivali, Navi Mumbai, Mira Bhayander, Bhiwandi-Nizampur and Ulhasnagar) and 13 municipal councils (six in Thane district and seven in Raigad district). **Out of these, Greater Mumbai constitutes about 10% of the total geographic area, but accounts for 63% of the population of MMR region**. Annexure 1.1 presents the map of MMR indicating the physical boundaries and proposed land use pattern for the region.

1.2 Demographic Data

The population of MMR increased from 7.8 million in 1971 to 18.9 million in 2001, recording an average compound annual growth rate (CAGR) of 3% over the 30-year period[1]. The population build-up during this period throws some interesting facts about the overall development of MMR region (figure 1.1):

Figure 1.1: Population Growth in Greater Mumbai, MMR and Thane/Raigad



Source: Population and Employment Profile of Mumbai Metropolitan Region, MMRDA

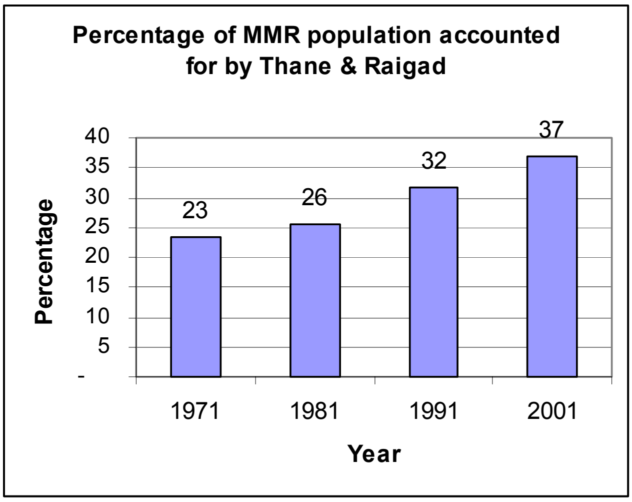
- The MMR's population growth slowed down during the nineties (2.7% during 1991-2001) as compared to the seventies (3.6%)
- The overall CAGR of population of MMR (3%) was higher than that of Greater Mumbai (2.3%) and also of Maharashtra (2.2%) over the 30-year period (figure 1.1). As a result of which,
  - MMR's share of Maharashtra's population increased from 15% in 1971 to 20% in 2001;

[1] The growth is essentially due to growth in urban MMR (which grew at a CAGR of 3.31% over the 30-year period); on the other hand, the rural MMR population actually declined slightly.

- The share of Greater Mumbai's population in that of MMR declined from 77% in 1971 to 63% in 2001, which indicates that population has grown at a faster pace in the outer areas of the MMR compared to Greater Mumbai.

- While the CAGR of population of Greater Mumbai declined from 3.3% in 1971-81 to 1.8% in 1991-2001, **Thane & Raigad Districts registered substantial growth in population (4.2% over 1991-2001 and 4.6% over 1981-2001). These two districts accounted for only 31% of the growth in population of MMR over 1971-81 but for 54% in 1991-2001.** This is also a reflection of the direction of spatial growth in the region and the flow of population within MMR.
- As a result, the share of Thane & Raigad in the total population of MMR increased from 23% in 1971 to 37% in 2001 (figure 1.2) and therefore the trend is already in the direction of wider distribution of population throughout MMR.

Figure 1.2: Percentage of MMR population accounted for by Thane & Raigad



Source: Population and Employment Profile of Mumbai Metropolitan Region, MMRDA

Table 1.1: Population, Annual Rates of Growth of Greater Mumbai, 1951–91

Year	Population in '000s	Rate of Growth (per cent p.a.)	Decade Increase ('000s)	Natural Increase ('000s)	Net Migration ('000s)	Share of Migration (per cent)
1951	2994	5.1	1193	243	950	79.6
1961	4152	3.3	1158	558	600	51.8
1971	5971	3.6	1819	934	885	48.7
1981	8243	3.2	2272	1204	1068	47.0
1991	9926	1.9	1683	1387	296	17.6
2001*	11914	1.8	1989	1257	732	36.8

* As estimated by Sudha Deshpande

Notes:

Though the above data shows sharp decline in the growth rate and percentage share of net migration in 1991, it was primarily the result of under-enumeration of Mumbai's population. She estimates that if counted correctly in 1991, Mumbai's population would be 10.5 to 10.7 million, net migration 0.88 million to

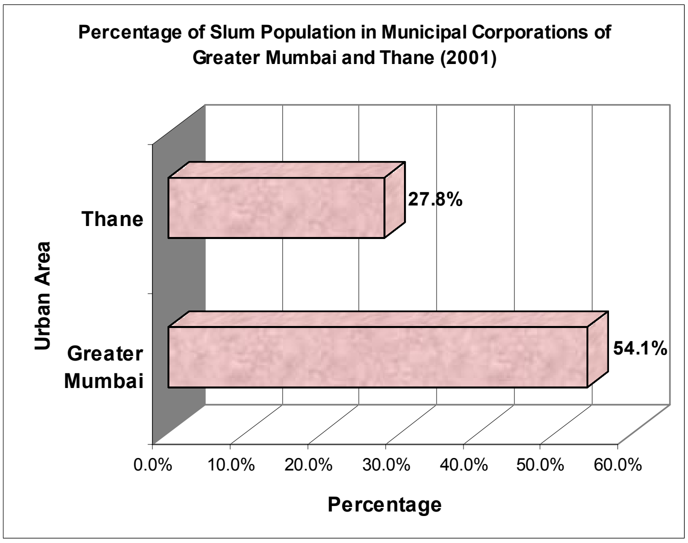
1.13 million and its share in the 39 to 45 per cent and not 17.6 per cent. (Source: Maharashtra Human Development Report, 2002)

1.3 What is driving Population Growth in MMR?

The population increase in Greater Mumbai from about 3 million in 1951 to 11.9 million in 2001 is partly a result of natural increase in population and partly due to migration (table 1.1 shows the share of migration in the total increase in population). The share of migration in the total increase in population was 36.8% in 1991-2001, lower than in earlier decades, except for 1991-2001, which is being debated as an under-estimate*.

Such a sharp increase in population definitely puts pressure on the civic infrastructure of the region, especially the housing stock. As a result, unauthorized habitations get developed in the form of slums due to the region's inability in this period to provide affordable housing to the burgeoning population.

Figure 1.3: Percentage of Slum population (Census-2001)



As per the 2001 Census, about 38% of the population of urban MMR lived in slums at an aggregate level. The situation is more alarming in Greater Mumbai where about half of the population lives in slums. The situation is also serious in Thane Municipal Corporation area, where about 28% of the population lives in slums.

Such a large proportion of slum population is alarming. and is a challenge for any city administration to control creation of new slums in the region and regularize the existing slums by providing requisite infrastructure facilities. As a premier employment center of the country, it would be difficult to markedly curtail migration to the region. Answers to the slum problem lie in more evenly spreading out the economic activities throughout the MMR and reforming the land and housing markets to enable increased supply of decent housing at lower costs.

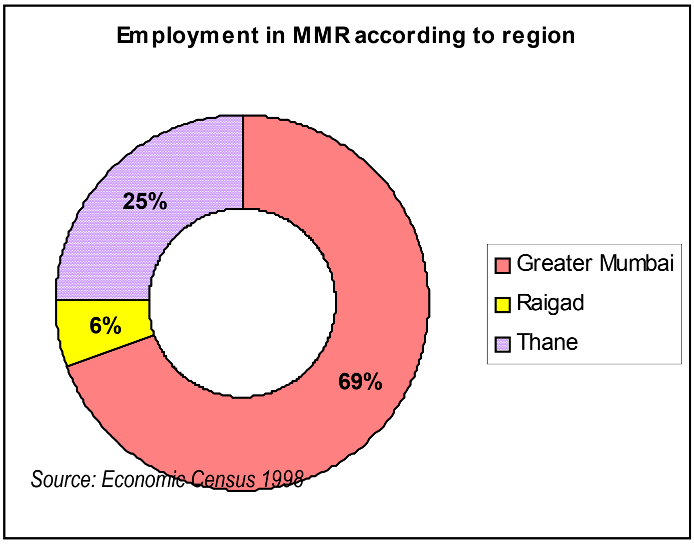
At present, Greater Mumbai accounts for about 67% of MMR's GDP and 76% of total employment in Urban MMR[2]. The following sub-section presents the employment statistics for MMR and the sector wise distribution of employment that outlines the nature of economic activities in the region. Further statistics on GDP and population in MMR are presented at Annexure 1.2.

[2] Rural MMR accounts for only about 3% of total employment in MMR

1.4 Employment in MMR

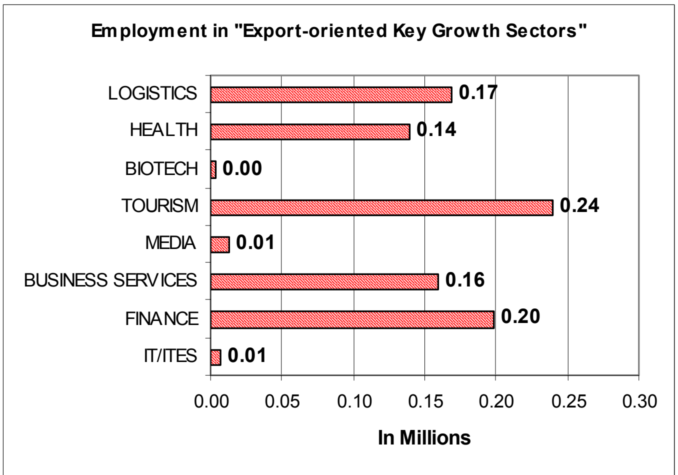
As per the 1998 Economic Census (2004 are still being analyzed and are expected to be published in the second half of 2006), the total employment in MMR was about 3.77 million, out of which the share of Greater Mumbai was about 2.63 million. This shows the prominence of Greater Mumbai as an employment center in MMR. Apart from Greater Mumbai, which accounts for 69% of employment in MMR; Thane and Raigad account for 25% and 6% respectively (figure 1.4).

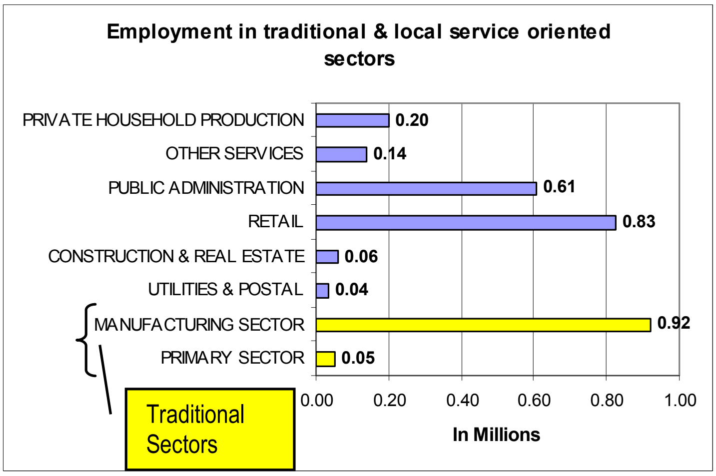
Figure 1.4: Regional distribution of employment in MMR (1998)



The sector-wise distribution of employment in MMR in 1998 as per the NIC classification is shown in figure 1.5. The **biggest employers, were the manufacturing sector (24.5%) followed by retail (21.9%) and public administration (16.1%).**

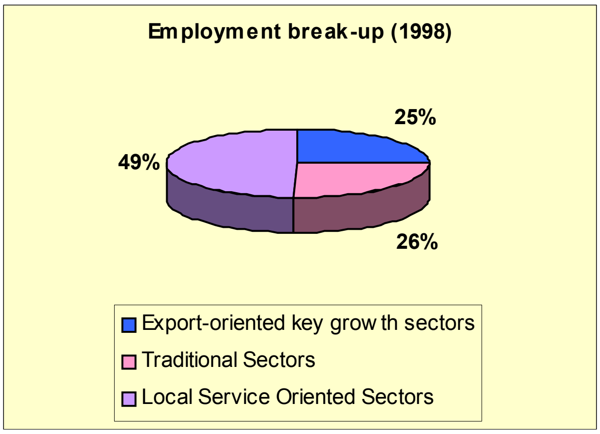
Figure 1.5: Sector-wise employment in MMR





Source: Economic Census 1998

Figure 1.6: Sector-wise employment in MMR



Further analysis of the employment data shows that the "local service oriented sectors" accounted for 49.6% of employment; "traditional sectors" accounted for 25.8% and "export-oriented key growth sectors" accounted for 24.6% of total employment in MMR in 1998. (see figure 1.6).

More detailed sector-wise employment statistics are presented in **Annexure 1.3** to this report.

1.5 GDP composition and growth trends – MMR and Maharashtra

The following sub-sections present the salient characteristics of the economy of MMR and compare them with that of Maharashtra with respect to the following parameters:

- GDP composition and growth trends;
- Contribution of specific sub-sectors within primary, secondary and tertiary sectors;
- Location Quotient (LQ) analysis for identification of sub-sectors that have relatively high concentration in MMR as compared to Maharashtra and India (presented in **Annexure 1.4**).

The analysis of trends in economic growth shows overall unimpressive growth in GDP in MMR[3] as well as Maharashtra over FY94 to FY04. The CAGR of GDP was 5.3% for Maharashtra and slightly higher (5.6%) for MMR over the period 1993-94 to 2003-04 (figures 1.7 and 1.8). However, there has been an upturn in the (MMR) economy with **over 10% growth in each of the last two years**.

Figure 1.7: Trends in GDP for Maharashtra (1993-94 to 2003-04)

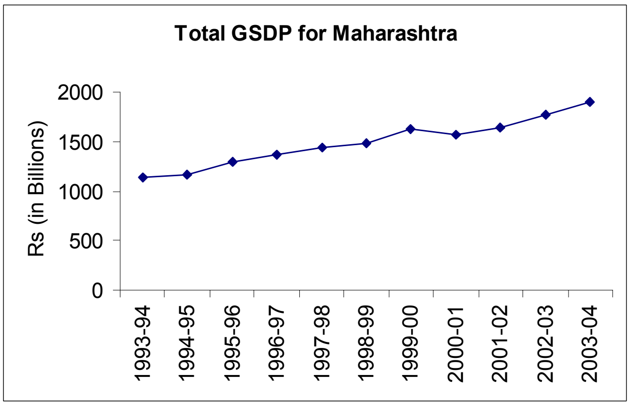
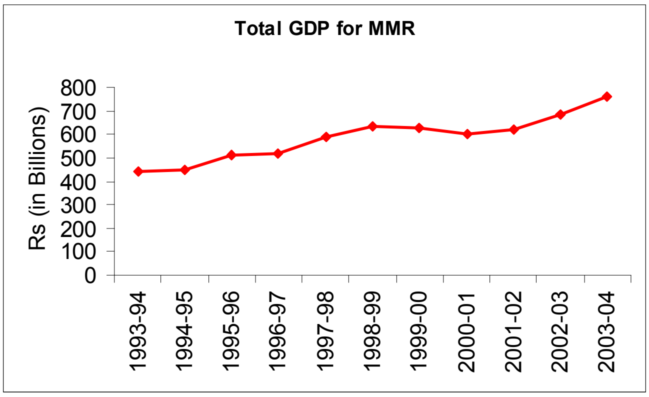


Figure 1.8: Trends in GDP for MMR (1993-94 to 2003)

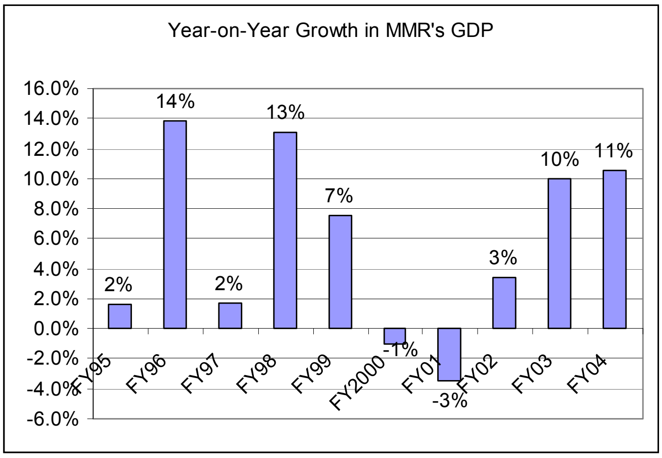


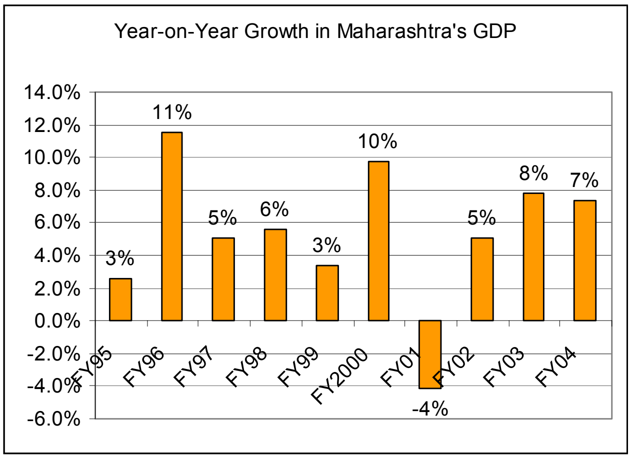
Source: Department of Economics and Statistics, Government of Maharashtra

[3] The Domestic Product of MMR is calculated as the sum of the district domestic products of Mumbai, Thane and Raigad districts. Because the physical boundaries of MMR cut through the districts of Thane and Raigad and do not include them completely, this is a slight over estimation

An interesting feature of the economy of MMR and Maharashtra during the period FY94-FY04 is the volatility in year-on-year growth rates of GDP. MMR's GDP growth rate was negative in the years FY2000 and FY01 and even the growth rate of Maharashtra's GDP was negative in FY01.

Figure 1.9: Year-on-year trends in GDP for MMR & Maharashtra (1993-94 to 2003-04)



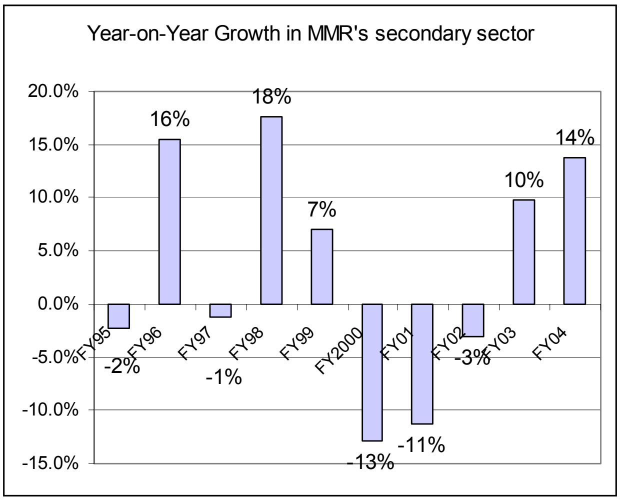


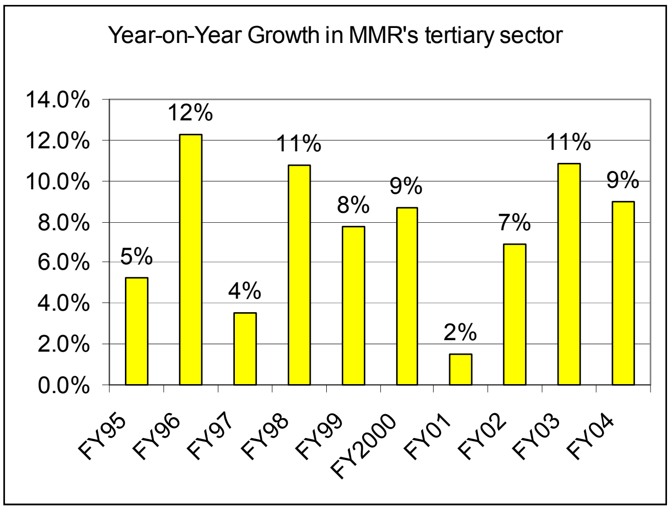
Source: Department of Economics and Statistics, Government of Maharashtra

Further analysis of the sector-wise growth trends (figure 1.10) for MMR shows that:

- The secondary sector is one of the major contributors to the volatility and witnessed negative growth for three consecutive years (FY 2000 to FY02). Within the secondary sector, the following sub-sectors were the major under-performers during this period (figures in parenthesis give the negative growth rate vis-à-vis the preceding year):
  - Manufacturing (-17%), Construction (-6%) and Utilities (-13%) in FY 2000
  - Manufacturing (-9%) and Utilities (-12%) in FY02
- "Manufacturing" grew at a CAGR of 3% (between FY94 to FY04) but there are signs of revival in the last two years (growth of about 15% per annum in FY04)

Figure 1.10: Year-on-year trends in secondary & tertiary sector GDP for MMR (1993-94 to 2003-04)





Source: Department of Economics and Statistics, Government of Maharashtra

- As per ASI data, sub-sectors such as, manufacture of coke, refined petroleum products and nuclear fuel; manufacture of chemicals and chemical products, manufacture of basic metals and fabricated metal products, manufacture of machinery & equipment including electrical machinery are important constituents of MMR's secondary sector[4] (refer table 1.2)
- The tertiary sector's growth (CAGR of 7.6%) is relatively more consistent and is the reason for MMR's economic growth during this ten year period

Table 1.2: Analysis of Annual Survey of Industries (ASI) Data for MMR (2003-04)

NIC Code	Sub-sector	Gross Value Added (Rs. Billion)	Highest district shares within MMR
23	Manufacture of coke, refined petroleum products and nuclear fuel	Rs. 102 billion	• 79% - Raigad • 20% - Mumbai
24	Manufacture of chemicals and chemical products	Rs. 56 billion	• 43% - Raigad • 37% - Thane • 20% - Mumbai
27 & 28	Manufacture of basic metals and fabricated metal products	Rs. 26 billion	• 64% - Raigad • 27% - Thane
29	Manufacture of machinery and equipment including electrical machinery	Rs. 21 billion	• 65% - Mumbai • 24% - Thane
36	Manufacture of furniture	Rs. 13.4 billion	• 98% - Mumbai
17 & 18	Manufacture of Textiles and apparels	Rs. 11.3 billion	• 50% - Thane • 44% - Mumbai

Source:
Directorate of Economics & Statistics, Govt. of Maharashtra

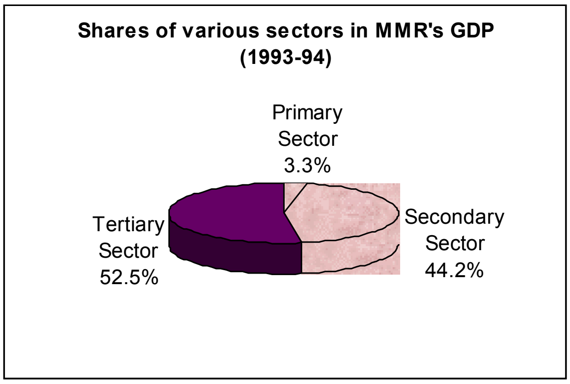
(Annexure 1.5 presents the detailed regional shares within MMR for select categories of industries).

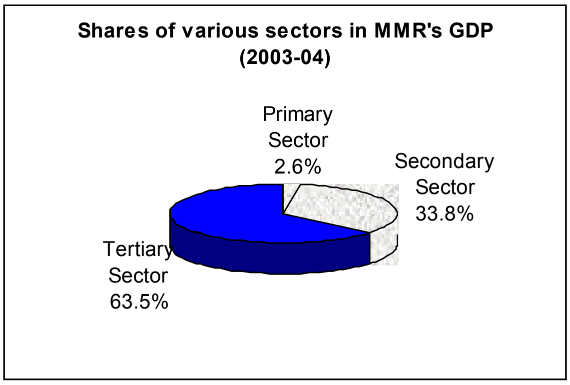
As a result of the aforementioned growth rates of secondary and tertiary sectors, there have been significant changes in the structure of MMR's economy during the period 1993-94 to 2003-04 (figure 1.11 provides the shares of the various sectors in the Gross Domestic Product of MMR at constant prices):

- The tertiary sector grew at a CAGR of 7.6% over the period 1993-94 to 2003-04 and its share increased from about 52.5% in 1993-94 to 63.5% in 2003-04
- Apart from contributing to economic growth, the tertiary sector's share in GDP is also the highest (63.5% in 2003-04). This is followed by the secondary sector, which formed about 34% of GDP in 2003-04.
- On the other hand, the contribution of the secondary sector to MMR's GDP declined from about 44% in 1993-94 to 34% in 2003-04 (the decline was quite marked during the period FY2000 to FY 2002, though there are signs of revival in 2002-03 to 2003-04).
- The primary sector contributes a very smalll share of GDP (2.6% in 2003-04, reduced further from its already low share of 3.3% in 1993-94). The CAGR for this sector was about 3.4% over the period 1993-94 to 2003-04. The sector's share has been declining, especially from 2001-02 onwards.

[4] The Gross Value Added (GVA) data based on ASI statistics does not correspond directly with the GDP data for MMR and therefore no attempt has been made to compare GVA with the GDP figures.

Figure 1.11: Share of major sectors in GDP of MMR (1993-94 and 2003-04)





Source: Department of Economics and Statistics, Government of Maharashtra

1.6 Conclusions

From the above sections, the following conclusions may be drawn:

The Mumbai Metropolitan Region's share in the state's GDP in 2003-04 was as high as 40%. Within MMR, a large proportion of the population and economic activities is accounted for by Greater Mumbai, which alone contributes to 63% of the population of MMR (2001), 67% of GDP (2003-04) and 76% of employment (1998). Although there has been some population shift towards the outer regions of MMR in the recent times, Greater Mumbai still claims the largest share. This shows the importance of Greater Mumbai in the context of MMR and the state.

Within MMR's economy:

- The mainstay of MMR's economy over the past decade has been the tertiary sector, which is now typical of major metropolitan economies, both nationally and globally.
- The share of the secondary sector, although declining in the last 10 years, is still substantial and cannot be neglected in the overall economic context of MMR. MMR still contributes to 50% of Maharashtra's manufacturing GSDP and over 8% of India's manufacturing GDP. Greater Mumbai accounts for about 60% of MMR's manufacturing GDDP.
- Both the secondary and tertiary sectors will have to be given impetus to achieve 12-15% growth of MMR's economy on a sustainable basis. Within these broad sectors, there are clearly some sub-sectors that hold greater promise in terms of higher growth or greater employment generation potential and therefore these sectors should be focused on. These are covered in greater detail in section 3 on sector analysis.
- The contribution of the primary sector will continue to be insignificant to MMR's GDP (hence, primary sector is not analyzed further in this report).

In order to further catalyze economic growth, there are a few critical areas that need immediate attention of state government and policy makers:

- Migration has contributed in a significant manner to population growth in Greater Mumbai: To some extent, this is inevitable given Mumbai's position as a major economic center. However, the increase in population has put severe pressure on the city's civic infrastructure, especially housing stock;
- There has also been a large increase in slum population, with about 38% of the population of urban MMR, and approximately half of Greater Mumbai's, population living in slums in 2001 – areas of unregulated, poor quality structures with little or no sanitation;
- This points to the necessity of catalyzing economic growth and spreading it more evenly throughout MMR, so as to enable outer areas to develop and also reduce pressure on Greater Mumbai;
- The tertiary sector has emerged as the largest contributor to MMR's economy, with a 64% share in GDP which is in the range typical in developed countries (60-75%). On the other hand, the secondary sector (especially manufacturing) has been in a decline phase;
- This calls for proactive steps from the state government to rejuvenate the manufacturing sector and intervene in order to boost tertiary sectors such as banking & insurance, communications and trade, hotels & restaurants.

The following chapter builds on the findings of this chapter and sets out our vision for the Mumbai Metropolitan region.

II. VISION AND FRAMEWORK FOR ACHIEVING VISION

2.1 Vision - MMR

With a population base of about 22 million in 2006, the Mumbai Metropolitan Region (MMR) is the largest urban conurbation in India, one of the largest in the world. Traditionally it has also been India's strongest and most diverse metropolitan economy, but over the past decade two issues motivated its leaders to call for the "transformation" noted earlier. First, its economic growth rate had declined in relation to the national average and, in particular, in relation to booming hi-tech centers like Bangalore and Hyderabad. Second, its quality of life was deteriorating (as evidenced by serious infrastructure deficits and the fact that 49 percent of its population lives in slums).

Our overall vision for MMR is therefore:
1. To enable economic growth of 12-15% per annum while ensuring more even growth throughout MMR;
2. Supplement this economic growth by facilitating superior quality of 'life' factors to the citizens of MMR; and
3. To ensure equitable participation in economic growth by all segments of society.

If this vision of a 12% economic growth rate can be achieved for the MMR, GDP will grow to Rs. 4,65,186 crore in FY 2020 – a six-fold increase over its FY 2004 level of Rs. 75,882 crore. We have considered two scenarios to estimate the share of various sectors and the requisite growth rates of these sectors to achieve 12% GDP growth per annum.

Scenario 1: Structure of the economy remaining almost constant

The first scenario assumes that the structure of the economy remains almost similar to what it is today; i.e. that the major sectors continue to maintain the same share in MMR's economy in FY 2020 as in FY 2004.

- The primary sector's share is assumed to remain constant (share of 2.5% in FY 2020) and the sector would therefore need to grow at a CAGR of 11.6%
- The secondary sector is assumed to have a share of 30% in MMR's GDP in FY 2020. Accordingly this sector will need to grow at a CAGR of 11.2%
- If the primary and secondary sectors grow at the rates mentioned above and maintain their respective shares, the tertiary sector's output would need to grow at a CAGR of 12.4% and, in the process, its share of total GDP would reach 67.5% in FY 2020

Scenario 2: Structure of the economy changes depending on the growth rates of the three sectors

In this scenario, we have assumed that the shares of the three sectors in FY 2020 will be dependent on their respective growth rates. Hence, this scenario entails varying assumptions based expectations about performance.

- The primary sector is assumed to follow a linear trend (CAGR of 2.2% – the primary sector grew at CAGR of 3.4% during the period FY94 and FY04)
- The secondary sector is assumed to grow at a CAGR of 7%-8% (the secondary sector grew at a CAGR of 2.8% during the period FY94 and FY04)
- Consequently the tertiary sector would need to grow at 13.9% (13.7% in case the secondary sector grows at 8%) in order to obtain an overall 12% growth rate of GDP of MMR

- Consequently, the shares of the primary, secondary & tertiary sectors in 2020, respectively, would be 0.6%, 16.3% (18.9% if the secondary sector grows at 8%) and 83.1%% (80.5% if the secondary sector grows at 8%).
- In this scenario the structure of the economy changes significantly with the shares of the primary and secondary sectors decreasing and the share of the tertiary sector increasing to over 80% which is more in the range typical in developed city economies.

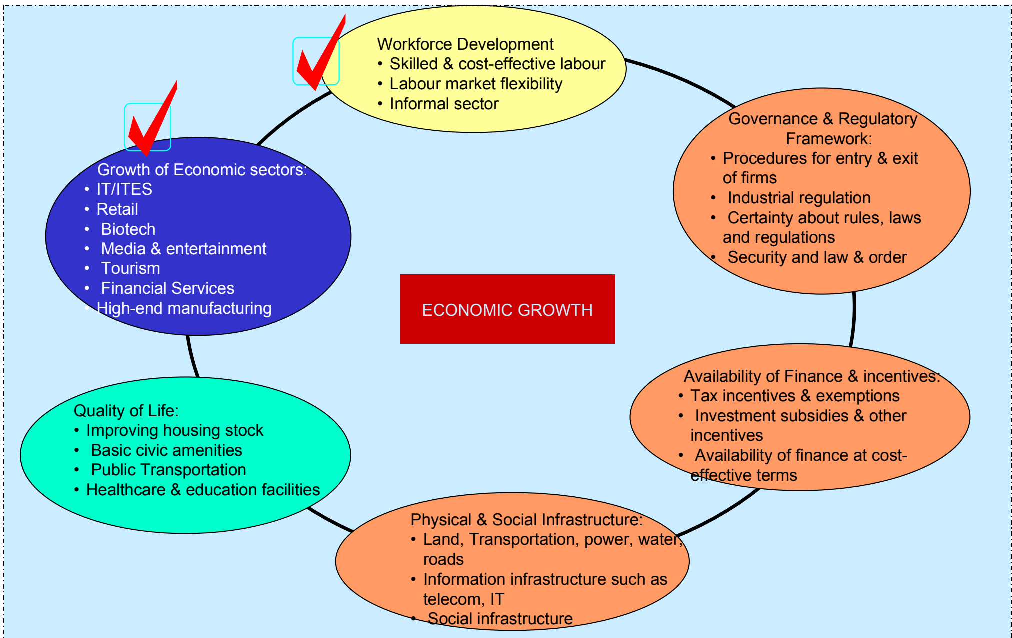
2.2 Framework for Achieving Vision-MMR

The economic growth must result in improving the 'quality of life' of the citizens. How then is economic growth to be promoted? A decade ago, the concept of local economic development often focused on the provision of subsidies in an attempt to 'steal' industries away from competitive regions. Today, it is recognized that a much more effective strategy for economic growth involves two themes:

1. **Improving the local investment climate; i.e. reducing the general costs of doing business in the city.**
2. **Providing specialized support to key growth industries**

1. Improving the local investment climate. This entails a variety of activities that facilitate, and reduce the costs of, doing business in general in Mumbai. It includes (see figure 2.1):

Figure 2.1: Economic growth framework



- Providing adequate physical and social infrastructure
- Creating an efficient land/property market,
- Strengthening the system for workforce development
- Creating an effective regulatory environment (and reducing corruption)
- Rationalizing the system of taxation
- Improving access to market financial resources

2. Support key growth industries. Some economic industries are more important to the economy than others. While history has proved that it is inefficient to try to plan industrial development in detail, it is possible for local leaders to find special ways to support industries that have the highest potential. This can mean, for example:

- Making special efforts to market and promote them nationally
- Giving higher priority to specific land and infrastructure projects they need
- Giving higher priority to reducing regulatory barriers most important to them
- Working with Universities to provide special research and training programs that will bolster their competitive positions
- Providing subsidies where high payoffs are likely to be gained

Other subgroups in the Task Force are considering the broader programs needed to improve the investment climate: for example, in physical infrastructure, housing, and social infrastructure. This report focuses on the second topic: supporting key growth industries.

In this work, we take an "economic cluster" approach rather than one that focuses on traditional industries. A traditional approach would look at the process of manufacturing a particular product individually. In contrast, the cluster approach recognizes that the manufacturing activities are themselves supported by a host of activities that occur in other sectors as conventionally defined. These might include, for example, specialized legal and accountancy firms, specialized university institutes, particular shipping and transport facilities, etc, that support (are often vital to) the ultimate delivery of that particular product. In other words, the approach explicitly attempts to identify backward and forward linkages.

To this end, we short-listed specific industries in MMR's economy, where MMR has comparative advantages, and which we believe will create opportunities for employment as well as enable the economy to grow at the targeted rate of 12-15% per annum. In order that they fulfill their potential, these industries should be given adequate focus and attention from the state government and other stakeholders. In particular, the manufacturing sector, where low cost environments are increasingly being preferred, needs to be given attention in order that this sector undergoes revival and contribute to economic growth.

The focus of this report from this point onwards[5] is to outline specific interventions required in order to effectively target a few potentially high-growth industries. Further, the companion report on mainstreaming the informal sector workforce analyzes the labor market of Maharashtra and MMR and makes specific recommendations to build capacity of the labor force with special emphasis on integrating the informal sector labor force with the mainstream economy.

[5] The other investment climate issues are being addressed by a concurrent study being carried out by World Bank

III. SECTOR ANALYSIS

3.1 Transition of City Economies

Supporting selected economic growth industries/clusters is a key element of the proposed strategy for economic growth. It is critical to identify such high growth industries that have the potential to drive the region's economy on a high growth path.

Globally, it has been witnessed that economic transition tends to follow a developmental progression from a heavy reliance on agriculture, toward the development of industry (e.g. automobiles, steel, textiles, etc.) and finally toward a more service based structure. United Kingdom was the first economy to follow this path in the modern era and many more economies have subsequently made this transition.

What drives New York City's Economy?

- New York City is the **chief center of finance in the world economy** with Wall Street in Lower Manhattan's Financial District. Financial markets in the city include New York Stock Exchange, NASDAQ, American Stock Exchange, New York Mercantile Exchange, and New York Board of Trade.
- New York is the center of many of the service sector industries in the U.S., with **more Fortune 500 companies headquartered in the city than anywhere else in the country**.
- The city is an important **center for American mass media, journalism and publishing.** Manhattan's Madison Avenue is synonymous with the American advertising industry
- Seventh Avenue is nicknamed "Fashion Avenue" and serves as an important **center for the fashion industry.**
- New York also has the most important scenes for **art, music, and theatres** in the U.S., with an increasingly active artist's community. New York City is the home of the four major television networks, ABC, CBS, the Fox Network, and NBC, and while the local film industry is dwarfed by that of Hollywood, its billions of dollars in revenue make it the second largest in the nation.
- The city also has a **large tourism industry** – Empire State Building, Times Square, Radio City Music Hall, Statue of Liberty, Ellis Island, Wall Street, UN Headquarters, American Museum of Natural History, St. Patrick's Cathedral and the Brooklyn Bridge
- Shopping is another attraction for the tourists - Fifth Avenue (shopping corridor for luxury items), Macy's (**nation's largest department store)**, and the surrounding area of Herald Square (destination for more moderately-priced goods). In recent years 23rd Street has become a major location for "big-box" retailers. In southern Manhattan, Greenwich Village is **home to hundreds of independent music and bookstores**. The "diamond district" is the city's main location for **jewelry shopping**, and SoHo, formerly the center of the New York art scene, is now famous for **high-priced clothing boutiques**, and the **art galleries** are now concentrated in Chelsea.
- New York is a **city of "great museums"** with the Metropolitan Museum of Art's assemblage of historic art, the Museum of Modern Art and Guggenheim Museum's 's 20th century collection, and the American Museum of Natural History and its Hayden Planetarium focusing on the sciences. Apart from these museums, the city is also **home to a vast array of spaces for opera, symphony, and dance performances.** The Lincoln Center for the Performing Arts houses 12 separate companies, including the New York Philharmonic, the Metropolitan Opera, the New York City Opera, the New York City Ballet, and Jazz at Lincoln Center. Other notable performance halls include Carnegie Hall, Radio City Music Hall, and the Brooklyn Academy of Music.

An appropriate case study for MMR and specifically Mumbai city is the New York City. Historically, the New York City developed because of New York Harbor, widely considered one of the finest natural ports in the world. Since the 1950s, most shipping activity in the area shifted to Port Newark-Elizabeth Marine Terminal in New Jersey. But despite changes in international shipping, trade and the tertiary sector have always remained the real basis of New York's economy (See box: "what drives New York city's economy"). Manufacturing first became a major economic base for New York City in the mid-nineteenth century with the advent of industrialization and the railroad. New York was formerly a national center for clothing manufacture; however, manufacturing gradually declined (like international shipping) in the late-twentieth century with rising land values. This is a phenomenon being witnessed by Mumbai too.

Study of developed metropolitan cities like London, Geneva, Dubai, etc. reveals that tertiary sector is the mainstay of the city's economy. For example,

- **London's economy contributes around 17% of the UK's total GDP** and is individually larger than many major cities elsewhere in Europe. In the recent decades, **contribution of manufacturing and production has declined to about 11% of London's GDP and 8% of the UK's manufacturing output.** The tertiary sector is driving the city's economy with the **financial and business services employing about one-third the total Greater London workforce**. With more overseas company listings than any other exchange, the London Stock Exchange is the largest in the world, accounting for more than 32% of global turnover - more than the combined contribution of New York and Tokyo. The sector is concentrated in the City of London, which with around 500 foreign banks and numerous insurance and other business service companies, is rightly recognized as a dominant force on the international financial stage. London is also a **major center for European e-commerce** and several other thriving industries including **arts and fashion, film, media, design, law and computing.** Around 85% of UK fashion designers and 70 percent of the UK film and television companies are based in London. **Tourism is another important industry for London** with typical yearly expenditure by tourists being in the region of £7-10bn ($11.7 - $16.8 billion).
- **In Geneva, the tertiary sector employs 84% of Geneva's working population while the primary and secondary sectors employ 1% and 15% respectively**. Within the tertiary sector, public administration, healthcare and business services are all-important segments but the city is known for its banking and financial services. The concentration of banking and financial institutions in Geneva is much higher than the national average and accounts for approximately 40% of the total volume of assets under management in Switzerland and 14% of worldwide cross border assets under management are directly or indirectly controlled from the city.
- Dubai's GDP is divided into oil and non-oil GDP, with the latter representing the overwhelming part of Dubai GDP. The **share of non-oil GDP in total GDP increased from about 90% in 2000 to about 93% in 2003**. This trend is on the rise due to the increasing importance of the non-oil production in Dubai economy. During the period 1999-2003, the **average share of the primary sector in Dubai total GDP was 9%, the secondary sector was 16% and the tertiary sector was 75%. Among the tertiary activities, four segments**, viz., Wholesale, retail trade and repairing services; Transports, storage and communication; financial services (banks, insurance, and finance) and Real estate and business services **contributed more than 50% of the tertiary sector's share of the total GDP.**

Mumbai City and MMR are quite similar to the cities illustrated in this section. The need for multiple 'hooks' as part of the city's economy is quite well demonstrated by the New York City case study. In the last fifty years, New York has managed to achieve high economic growth by positioning itself as a centre for financial services, tourism/leisure and entertainment, media, fashion, retail, sports, etc.

Similarly, the Mumbai Metropolitan Region (MMR) too needs to make a transition to the services sector and high-end manufacturing industries[6] for achieving the requisite economic growth as stated in the vision.

3.2 Identifying Key Industries

As mentioned in the previous chapter, economic industries deserve special attention for different reasons. This report identifies two main groups of industries and these are often not the same.

- Export-oriented industries most likely to draw in resources from outside of the region and, therefore, contribute to overall growth.

[6] Industries that have potential for high value addition

- Industries that have the highest capacity to absorb labor.

Key Growth Industries: In very large economies, like India as a whole, growth can be generated by internal demand as well as by exports. For a specific metropolitan region, however, GDP growth is more dependent on exports (exports to other parts of the country for the most part – not just international exports). This does not only mean the export of physical goods. In fact, Mumbai will increasingly be dependent on the export of services. Exports occur (and funds are drawn in from outside to contribute the growth) for example, when customers from outside obtain services from specialized Mumbai bankers, attorneys, or hospitals or when tourists from outside visit Mumbai.

To identify key growth industries, we examined data on all economic activities in the region. Two factors were emphasized:

- Evidence of a high potential for future growth nationally
- Evidence of a strong competitive advantage for the sectors in the MMR

National studies and experts were consulted to obtain evidence of growth potential. To rate local competitive advantage, we interviewed local industry experts and reviewed data on location quotients (refer Annexure 1.4) which show the comparative concentration of various industries locally. The location quotient for banking services in Greater Mumbai, for example, was 2.67 in FY 2004, which means that banking services share of total GDP here is 2.67 times its share in India as a whole. High current concentrations are important, but they should not be looked at exclusively. Industries should also be considered that may not yet have achieved high concentration but, for a number of reasons, seem likely to have the potential to reach higher concentration in the future (tourism is a good example in Mumbai).

As a result of this research, the following local sectors were identified in the key growth category:

- Information Technology (IT) and Information Technology Enabled Services (ITES)
- Biotechnology
- Media and Entertainment
- Hospitality and Tourism
- Financial Services
- Manufacturing (Textiles, Chemicals & Petrochemicals, Fabricated Metal Products)

Key Labor Absorption Industries: Key growth industries provide jobs directly but, often more important they provide jobs indirectly through multiplier effects. The financial services sector, for example, does not have a high direct ratio of employment to GDP generated. However, the new resources brought in by financial services create more jobs in other sectors; for example, as financial service workers spend their expanded incomes in malls, pharmacies, and personal service establishments. Our analysis shows that two sectors deserve special attention because of their labor absorptive capacity (hospitality and tourism and would also fit into this category, but it has already been selected as a key growth industry):

- Retail trade
- Construction

3.3 Profile of selected key growth industries

Out of this short list, the following industries are profiled in the following sections.

- Information Technology (IT) and Information Technology Enabled Services (ITES)
- Media and Entertainment
- Hospitality and Tourism
- Biotechnology
- Manufacturing (Textiles)
- Retail trade

> A few select short listed industries have been profiled covering the following areas:
> - Industry size & growth trends,
> - Critical Success Factors for the industry,
> - Maharashtra's current industry base,
> - Why Maharashtra/MMR
> - Interventions required to promote the industry

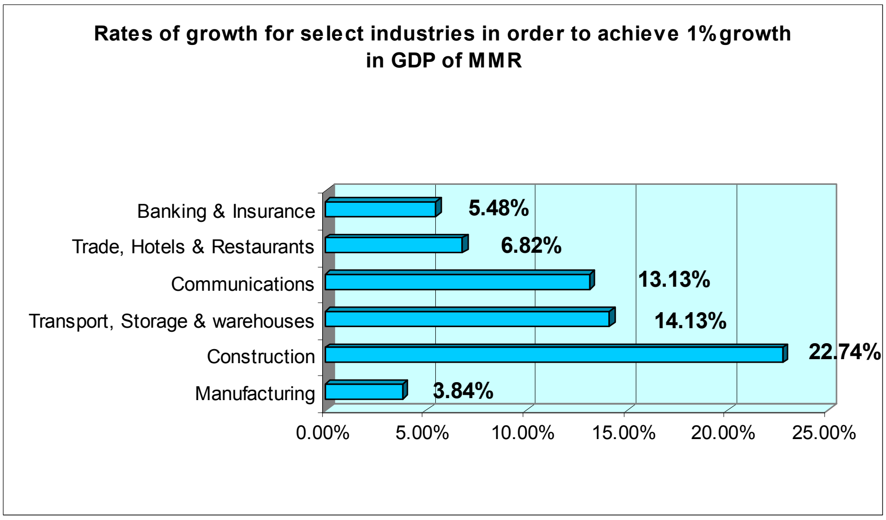
(Financial services is certainly a promising key growth sector for Mumbai. We do not profile it here only because a thorough analysis has already been done – see Bombay First, 2000).

3.4 Impact of selected industries on MMR's economy and employment

Going forward, the selected industries are expected to contribute significantly to MMR's economy and employment over the medium term. The potential GDP impact of each sector has been estimated for these sectors by way of calculating the required rate of growth in the sector in order to lead to a 1% growth in overall GDP and is summarized below (see figure3.1).

Most of these, especially manufacturing, construction and banking and insurance have contributed to the growth of MMR's economy, especially in the last two years. The six segments mentioned in the figure accounted for 90% of total GDP growth in MMR in 2002-03 over 2001-02 and 85% in 2003-04 over 2002-03.

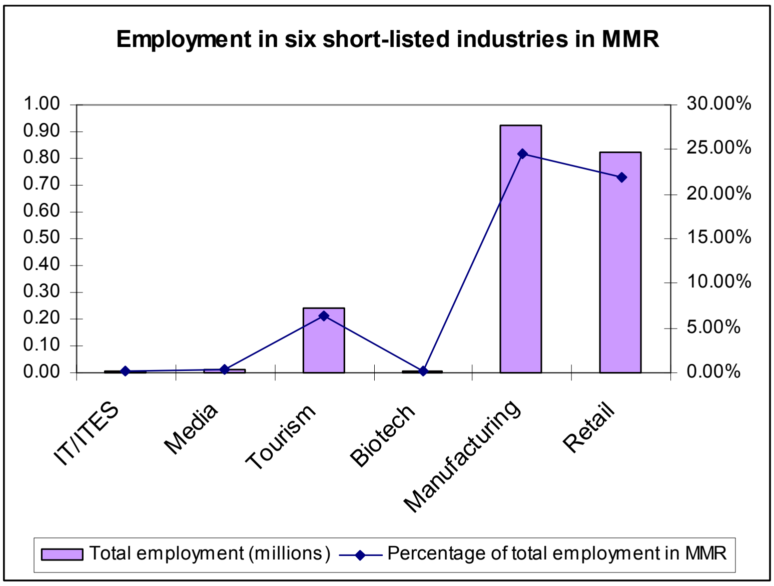
Figure 3.1: Potential contribution of key industries to GDP



Source: IMaCS analysis

Even in terms of employment potential, the six short listed industries mentioned above accounted for about 53% of total workforce employed in MMR (Refer Annexure 1.3 for sector wise break-up of employment pattern as per the economic census–1998)[7]. The estimated employment in MMR in 1998 for these short-listed sub-sectors is shown in figure 3.2.

Figure 3.2: Employment in six short-listed industries in MMR (1998)



Source: Economic Census 1998

The absolute numbers of employees give a fair idea about the leading employment segments in MMR in 1998. The only significant changes in the last seven years would have happened in case of IT/ITES and Media & Entertainment industries. These two industries saw sharp growth since 1998 and perhaps would have larger numbers in employment census-2004.

3.5 Methodology for preparation of industry profiles

The industry profiles were developed by:

1. Assembling and analyzing secondary data on the Indian and global industry (and specifically in MMR/Maharashtra) from a variety of relevant reports and publications including ICRA sector reports on selected sectors.
2. Reviewing a number of sector development approaches (international and national case studies, i.e. steps taken by countries and other Indian states– see list of references in Annex A).
3. Consulting experts on the development strategy for key sectors selected as the focus of the work in Mumbai.
4. Interviewing professionals and industry experts (in both the private and public sectors) about the workings of the local economy and possible strategies and actions to promote growth.
5. Past work such as sector/industry competitiveness studies and city vision/cluster development studies in both India and abroad undertaken by The Urban Institute, ICRA Management Consulting Services (IMaCS), and ICRA Ltd.

[7] This is the most recent employment census, which was carried out in year 1998. The field study of the next round of employment census – 2004 has been completed and the results are expected to be published by June 2006.

3.6 Information Technology (IT)/Information Technology Enabled Services (ITES)

Background

Maharashtra has a substantial existing base in the IT/ITES sector. One in five registered international ITES-BPO companies in India are located in Maharashtra, either in Mumbai or Pune. These companies represent a balanced mix of customer contact and processing services across captive and third party service providers. The presence of large captive and third-party service providers has helped the state to contribute around 17% of the country's IT/ITES exports.

Mumbai is classified as a Tier I city for ITES (the other Tier I cities include Bangalore and Delhi). Since 1999, most large overseas IT companies offshoring work to India (e.g., GE, IBM and Microsoft) have first set up operations in these cities, because they provided the largest and most qualified labor pool, suitable infrastructure, and appropriate real estate formats.

Most of the manpower and skills required for IT/ITES are found clustered in select areas of Maharashtra such as Mumbai and Pune. The state has strengths in the following areas for the IT/ITES sector:

- Quality of educational institutions, large workforce with proficiency in English language and IT skills
- Scale of urbanization and gateway to international markets through the international airport
- Employment and IT/ITES preference
- Government support for IT/ITES in Maharashtra

However, this strong base of skilled resources with infrastructure faces increasing pressures from factors such as high cost of skills, high attrition rates and retention challenges, difficulty in attracting manpower, inadequate/erratic power supply and other infrastructure problems, lack of sophisticated real estate, high cost of living, etc. Hence, many industry leaders are changing their strategy and are moving from Tier-I cities to the Tier-II cities. These alternate locations offer similar labor quality at a cost advantage compared to Tier-I cities. **Thus retaining its position as a key destination for IT/ITES is one of the challenges faced by the MMR.**

In fact, availability of large land parcels and skilled workforce are important determinants of the growth of the IT/ITES industry in a particular location. In FY 2005, fresh stock of about 23 million sq. ft of Grade–A 'space' was developed, distributed across the following cities:

- Bangalore – 8 million
- Hyderabad – 3.6 million
- Chennai – 3.5 million
- NCR – 3 million (of which 70% was in Gurgaon)
- **MMR – 2.75 million**

Almost all of this land was developed by the private sector and the government's role was only to provide land or facilitate/attract private sector investment.

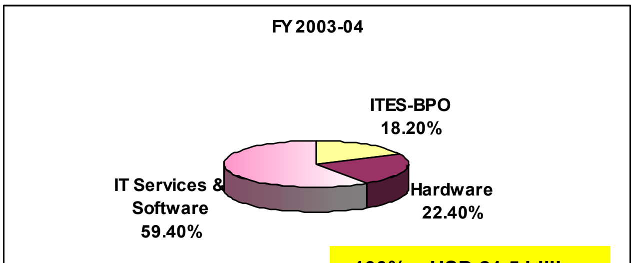
Because other states are seemingly being more proactive in terms of providing land and infrastructure for the development of the IT/ITES industry, Maharashtra needs to overcome some of the constraints relating to availability of skilled workforce and suitable land for this industry.

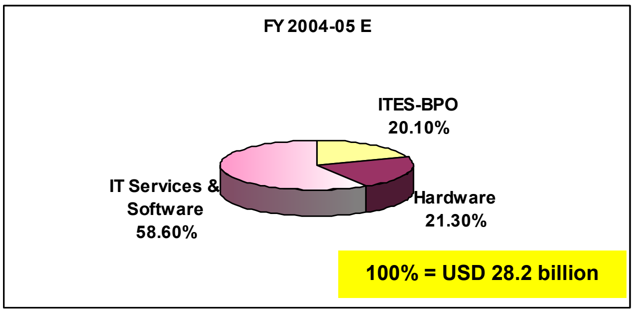
In this context, Navi Mumbai has the potential to become a major hub of IT and ITES industries. Given its proximity to Mumbai, companies there would have access to the quality workforce of Mumbai with much lower land cost. At the same time, just like Gurgaon (in NCR), Navi Mumbai could leverage the locational advantages and the infrastructure facilities that Mumbai offers at a cost advantage to these companies.

Statistics and growth trends for the industry

In the past one decade, the information technology (IT) industry has grown exponentially and continues to be one of the fastest growing industries, both globally and in India. The IT/ITES industry in India has shown double-digit growth, with industry aggregate revenue for 2004-05 expected to reach USD 28 billion (NASSCOM estimates) (figure 3.3). The industry's contribution to the national economic output has nearly tripled: from 1.2% in FY 1997-98 to 3.5% in FY 2003-04. The earnings from IT-ITES exports were USD 13.3 billion (61.9% of total industry revenues) in 2003-04 and about USD 17.9 billion (63.7%) in 2004-05.

Figure 3.3 Composition of Indian IT/ITES industry (FY 2003-04 and FY 2004-05 (E)





Source: NASSCOM

The Indian IT-ITES industry is broadly categorized into IT services and software, ITES-BPO and Hardware segments, of which IT services & software is the key contributor to the industry's revenues. Key drivers of growth include the growing adoption of IT outsourcing and the rapid expansion in the scale and breadth of ITES-BPO offerings by Indian vendors.

Following several years of flat to negative growth, global spending on IT-ITES is estimated to have grown by 6.4 percent over CY 2004, reaching a total of USD 1,410.2 billion by the end of that year. Although currently accounting for less than 2 percent (by value) of the global IT-ITES industry, India is ahead of its peer group and is fundamentally well equipped to tap the growing demand for offshore outsourcing.

Globally, North America and Western Europe were the major spenders, together accounting for more than three-fourth of the global IT-ITES spend. The US alone accounted for 47 percent of the global IT-ITES spends in CY 2003.

Critical Success Factors (CSFs) for the industry

The following key factors determine the success of the IT/ITES industry:

- Availability of a resource pool with requisite skills for IT/ITES operations;
- Facilitation efforts by the Government to make the requisite skilled labor available;
- Existing low cost land and infrastructure to sustain IT/ITES operations;

- State IT policy and incentives provided by the state vis-à-vis other locations;
- Presence of other companies operating out of the location being considered.

We feel that availability of a resource pool of skilled, low-cost talent is the single-most important determinant of the growth or success of the IT/ITES industry in a particular location.

Suggested interventions

While the state government has already taken several initiatives to promote the IT/ITES industry, it may consider the following additional interventions:

- **Direct Marketing Efforts:** We opine that Maharashtra (and specifically MMR) could be promoted as a location for high-end analytic services, given its talent, industry and entrepreneurial spirit. The government should position the state as the preferred destination for knowledge-processing outsourcing (KPO) services.
- To this end, the state's IT department should participate in road shows across the country and pitch the state's advantages to industry, especially in cities such as Gurgaon, Kolkata. The state could also tap into its illustrious Indian expatriates to invest in its proposed venture capital funds. It should also interact and explore options with organizations such as The Indus Entrepreneurs (TiE) to attract NRI investment in the state. A one-stop development agency is recommended (see point below) and this could also be given the mandate of building a value proposition for the sector and aggressively marketing the state to domestic and foreign investors. The agency should be given a dedicated budget for marketing and promotion
- **Facilitate development of IT Parks** at Navi Mumbai and Thane with requisite infrastructure and land development through public-private partnerships and innovative financing in order to counter competition from Tier-II cities and leverage MMR's strengths. The Government of Maharashtra already provides several incentives for setting up units at IT Parks (see Box: Maharashtra's IT & ITES Policy, 2003). Other states such as Karnataka offer similar incentives for IT Parks
- **Promote development of physical infrastructure:** Since employee and employee travel costs account for almost half of the ITES industry's operating costs, any government interventions aimed at making inter-city and intra-city travel easier and safer would reduce travel-related costs. Hence, improving connectivity of Navi Mumbai with other parts of MMR will make the location attractive to IT/ITES companies
- **Facilitate availability of requisite workforce:** Given the high number of educational institutions in the state, GoM needs to orient its education toward the IT/ITES industry in order to expand the pipeline of people willing to join the industry and improve the quality of the potential and current workforce.

Maharashtra's IT & ITES Policy, 2003

The Government of Maharashtra in its IT & ITES Policy 2003, commits itself to the following:

- **Institutional framework for policy implementation** through setting up an Empowered Committee headed by the Chief Secretary
- Provision of 'unique info infrastructure' including **IT parks and appropriate infrastructure** such as power supply and road connectivity
- Developing a **pool of skilled globally employable manpower** by encouraging training programmes by schools and higher & technical education departments and private training institutions
- Providing an **industry-friendly and supportive environment** especially with respect to labor laws and other working conditions
- **Fiscal incentives** such as stamp duty exemptions for setting up IT & ITES units including in IT Parks and sales tax exemptions
- Support to IT & ITES units by Urban Local Bodies such as **exemptions from octroi/entry tax**, provision for additional FSI (100% additional FSI made available to IT/ITES units in public IT Parks), etc.
- **Rewarding outstanding performance** of IT & ITES units through presentation of state awards, etc.

Further, to assess the right aptitude of its graduates, GoM should emulate Karnataka and Andhra Pradesh (AP) that conduct assessment tests such as B-SAT (BPO Skills Assessment Test) and Graduate Employability Test (GET) respectively for certification of employability to ITES/BPO industry. For designing similar certification tests, GoM should explore options to partner with institutions such as NIIT and APTECH

- **Set up a one-stop development agency to assist investors**. This agency would be a single point contact agency for BPO investors, act as a certifying authority, facilitate approval and liaise with government departments. There are several examples of successful state government initiated development agencies in India. APFIRST for instance was created as a special body by the Government of Andhra Pradesh to promote investment and development in key sectors including offshore IT and BPO
- **Catalyze ITES investments through e-governance:** Government investments in innovative e-governance projects would help catalyze investments and building of skills in IT/ITES (such as AP's experience with the launch of e-seva). Another notable example in this regard is Rajasthan, which has embarked on a Government-to-Citizen initiative called E-mitra for transparent governance
- Provide adequate security to prevent data piracy and train state police in cyber laws to handle cyber crime and data piracy
- Ensure good law and order to prevent any disruption of the ITES business (as it is a time-sensitive business). Law and order is critical in the ITES industry, especially from the viewpoint of women staff working at night

3.7 Entertainment & media

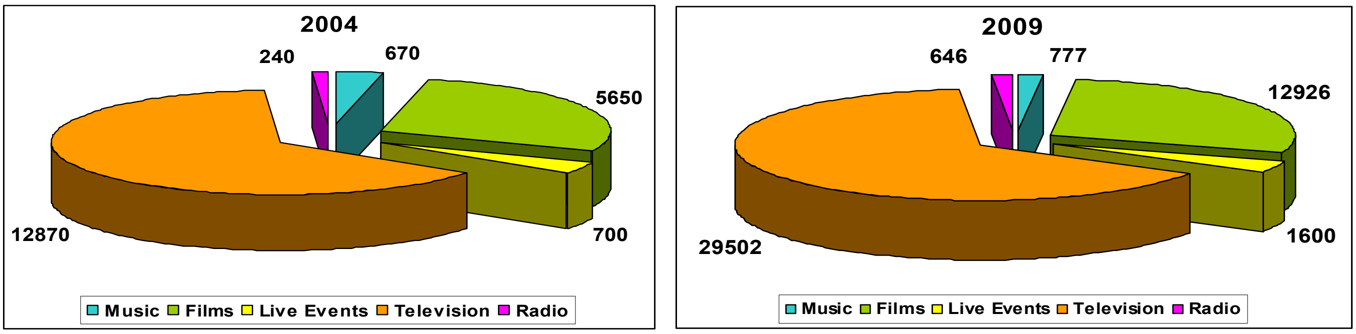
Background – Industry Segments

The Indian entertainment and media (E&M) industry is one of the fastest growing sectors of the Indian economy. Economic growth and rising income levels in the past few years have boosted the growth of this sector. When incomes rise, proportionately more resources get spent on leisure and entertainment.

The various segments that constitute the Indian E&M industry are: filmed entertainment, television, music, radio and print. Nationally, the industry was estimated at over Rs. 20,000 crore (USD 4.5 billion) in 2004 and is expected to grow at an annual rate of 18% over the next five years to reach over Rs. 45,000 crore (USD 10 billion) by 2009[8].

The largest contributor to the growth of the industry has been the **television segment, followed by the film segment** (Refer figure 3.4).

Figure 3.4: Indian entertainment industry: 2004 (actual) and 2009 (projected) *(In Rs. Crore)*



Source: "The Indian Entertainment Industry – An Unfolding Opportunity", FICCI

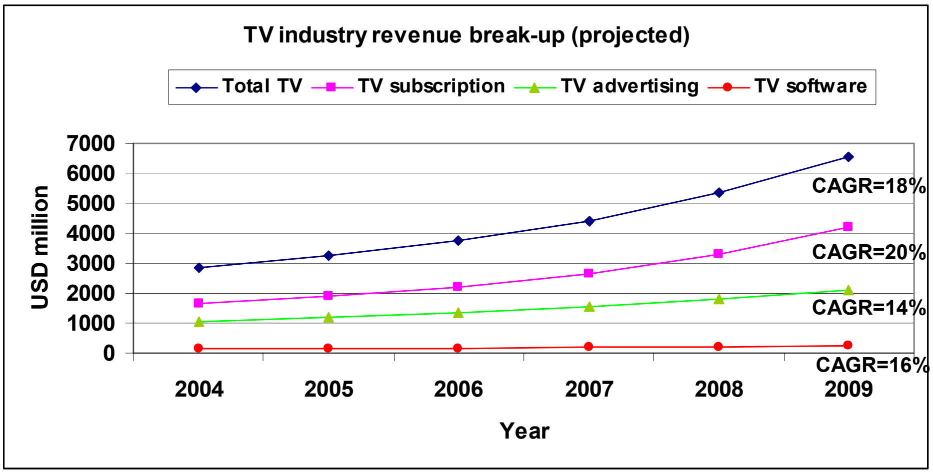
Note: Above figures include only the legitimate sales in each segment; revenues from the animation & gaming segments are included in the entertainment industry size as these have traditionally been included in the Indian IT and software revenues

Television

Broadcasting in India has flourished since the state television's monopoly was broken in 1992, and the number of stations and channels continues to grow. The television industry broadly has three streams of revenue: subscription, advertising, and software content. These are respectively projected to grow at 20%, 14% and 16%, and overall TV industry revenue is expected to grow at an 18% CAGR over the next five years (figure 3.5). The shares of subscription, advertising and software revenues in total industry revenues are therefore projected to change from 58%, 37% and 4% respectively, to 64%, 32% and 4% respectively (the share of TV subscription showing significant increase).

[8] Source: "The Indian Entertainment Industry-An Unfolding Opportunity", FICCI

Figure 3.5: Projected TV revenue break-up



Source: Report on Entertainment & Media by IBEF

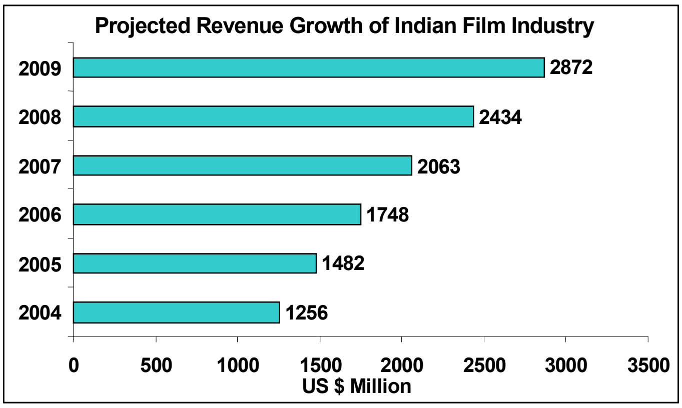
India is the third largest television market in the world, and given the low penetration percentages (42% cable TV households to total TV households and 25% cable TV households to total households in India), there exists huge untapped potential for growth in this industry. The chief area of growth in the Indian TV industry is cable and satellite services, especially in the rural and semi-urban areas.

Films

Size of industry

The Indian film industry is the largest in the world in terms of the number of films produced annually (approximately 900 films were produced in 2005). The projected revenues of the Indian film industry are shown in figure 3.5. Revenue is projected to reach a figure of close to USD 3 billion in 2009, which implies a CAGR of 18% over the period 2004-09.

Figure 3.5: Projected revenues of Indian film industry



Source: Indian Brand Equity Foundation

Growth drivers

For the filmed entertainment segment, the likely **growth drivers** in the next five years include:

- Better realizations in box office collections,
- Growth in collections from the overseas markets as a result of better marketing and distribution set-ups, and
- Emergence of the home video market linked primarily with the purchasing power of the consumers.

Key trends

- <u>Increasing move towards corporatization</u>. Corporatization involves a host of processes that go beyond just getting legitimate financing. Companies such as UTV, Adlabs, Sahara One and Pritish Nandy Communications have set up processes whereby plans for movies for the next two years form part of the pipeline. These projects are at various stages of completion with several teams and project heads for each process. Corporatization helps to average out revenues and bring in transparency and accountability. The trend may be attributed in part to the rise of marketing and evolution of distribution activities

- Emergence of integrated film companies and public issues of several companies related to movies (such as UTV Software and Shringar Cinemas)
- The advent of multiplexes, resulting in an increase in the number of moviegoers
- Emergence of smaller size theatres, which has provided the incentive for low-budget niche films and experimental cinema
- This has also resulted in a number of alternate revenue streams for film producers such as satellite TV rights, radio broadcasting, home videos, direct-to-home services, mobile phone services and broadband
- Substantial growth in revenues from overseas collections, consequent to an emerging growth in the number of prints being released for overseas theatres

Music

The Indian music market, which was earlier completely dominated by film music, is increasingly being driven by the success of music videos and non-film albums. The industry is estimated to be worth about USD 149 million currently (2004) and is projected to grow at 3% per annum over the next five years.

Radio

Indian radio today reaches out to 99% of the population and is currently the most cost-effective mass communication medium in the country. The size of the industry in India is currently estimated at USD 53 million and is projected to grow at 22% per annum over the next five years (to reach USD 44 million by 2009). The sector has been privatized recently and is undergoing substantial change with new radio licenses being issued, new channels being broadcast and the radio audience profile undergoing a change. The latter is mainly due to FM broadcast, and the Government of India is substantially enhancing FM coverage (the second round of bidding for phase-II expansion of private FM radio stations has recently been completed).

Gaming & Animation

The gaming and animation market[9] also has huge growth potential. As per a NASSCOM study on the Animation and Gaming industry in India:

- The global market size of the animation industry (from the developers' perspective) is expected to increase to USD 35 billion by 2009 from USD 25 billion in 2005
- The size of the Indian animation market (from the developers' perspective) was estimated at USD 285 million in 2005. It is expected to witness a CAGR of 35 percent from 2005-2009 and increase to USD 950 million by 2009
- The market for gaming development is expected to witness a CAGR of 78 percent and reach USD 300 million by 2009 from USD 30 million in 2005

[9] Traditionally included in IT and software revenues

The entertainment industry seems poised for steady growth. An indicator of the importance of the Indian market is the sharp competition in the broadcasting space between various international majors for a slice of the Indian pie. The box (Initiatives taken by the Indian government) summarizes the Indian Government's initiatives for this sector.

Initiatives taken by the Indian Government

- In 2001, 'industry' status was given to films making them eligible for financing from banks and financial institutions. This has the potential to lower the cost of production.
- In 2002, the Indian Government allowed 100 per cent FDI on automatic basis in the film industry with no entry-level pre-conditions. It also allowed foreign holdings up to 26% in news related publications
- The Indian Government is moving towards signing a number of co-production treaties with countries such as Canada and Italy.
- The Government reduced the basic import duty from 35% to 25% on certain digital studio equipment.
- Various tax incentives are being offered to investors investing in multiplexes in the non-metros.
- Several initiatives have been taken by the Government and industry to tackle the problem of piracy.
- In 2004 the Government of India issued a directive to include broadcast and cable services within the ambit of the existing telecom regulator TRAI

Critical Success Factors (CSFs) for the industry

Key factors that determine the success/growth of the M&E industry in a region include:

- Macroeconomic and demographic factors: An expanding economy and presence of a population base with high literacy and growing purchasing power, a significant proportion of which is spent on entertainment
- Increasing urbanization, which again leads to an increase in spending power
- Availability of studios, recording/dubbing and other production facilities
- Enabling government initiatives (such as clear and integrated legislation governing broadcasting operations and adequate anti-piracy measures) that are forward looking and take cognizance of the growing convergence in the information and broadcasting space

Maharashtra's advantages

Mumbai has long been home to the film based entertainment industry in India and has contributed to its development in a significant way. The city accounts for a major proportion of the industry's revenues. The digital revolution has enabled tech-savvy companies to distribute content across various platforms. The Maharashtra Government recognizes the importance of this fast growing industry and has become a vital enabler to provide the industry with long-term stability. The Industrial Development Bank of India (IDBI) set up the country's first film fund worth Rs. 1 billion. Moreover, Mumbai is also the creative center of India (capital of the media and advertising industry) and attracts a lot of talent (performers, technical and creative talent) from the rest of the country.

Figure 3.6 shows some of the key players in the Indian film industry and their presence across the areas of production, distribution, exhibition, retail, music and home video. All of these companies (with only one exception) are based in Mumbai.

Figure 3.6: Key players in Indian film industry and presence in Mumbai

Players	Production	Distribution	Exhibition	Retail	Music	Home Video	Based in Mumbai?
Adlabs Films	✓	✓	✓	✓	×	×	✓
Yash Raj Films	✓	✓	×	×	✓	✓	✓
Percept Picture Co.	✓	✓	×	×	×	×	✓
UTV	✓	✓	×	×	×	✓	✓
Pritish Nandy Communications	✓	✓	×	×	×	×	✓
Dharma Productions	✓	×	×	×	×	✓	✓
Sahara	✓	✓	×	×	×	✓	✓
K Sera Sera	✓	✓	×	×	×	×	✓
Shringar Cinemas	✓	✓	✓	✓	×	×	✓
PVR Cinemas	×	✓	✓	✓	×	×	×
Inox Leisure	×	✓	✓	✓	×	×	✓

Source: Businessworld survey on the Indian film industry, Jan 06 and IMaCS research

However, other regional movie hubs, such as Hyderabad and Chennai are becoming popular destinations for production and post-production activities. Apart from this competition within India, several other countries are also attracting Indian film makers to their country, which is also part of their tourism promotion strategy (See box: Synergy with Tourism Industry).

Synergy with Tourism Industry

Mumbai/MMR should attempt to attract production companies from other countries. For example, Warner Brothers is producing "Superman Returns" at the Fox Studios Sydney (built with government incentives). Warner Brothers' decision is based on the favorable exchange rate, the Australian government's 12.5 percent rebate on all production expenditures (no cap), and a broad infrastructure of crews, equipment and ample stage space.

Several states/countries offer tax credits and incentives for films and TV shows. New Zealand for instance offers production expenditure grants to large budget film and television productions as part of the long-term development of the New Zealand screen industry. A 12.5 per cent production expenditure grant has been made available for both local and overseas screen productions that meet the qualifying criteria. This grant scheme is an encouragement to attract and maintain the net economic benefits of hosting and producing major film and television projects in New Zealand.

New Zealand is also aggressively targeting Indian filmmakers since 1995. Since then, more than 90 films have been produced entirely or in part in the country. The influx led not only to short-term employment in New Zealand but also to a major growth in Indian tourism. The number of Indian tourists increased from 400 in 1995 to 25,000 in 2001 only because of the awareness among the Indians created by the Indian film industry.

In this context, Mumbai can also adopt a similar strategy and work with the tourism department to attract film makers from other parts of the world.

Suggested interventions

The following interventions by the state government are suggested for the entertainment industry:

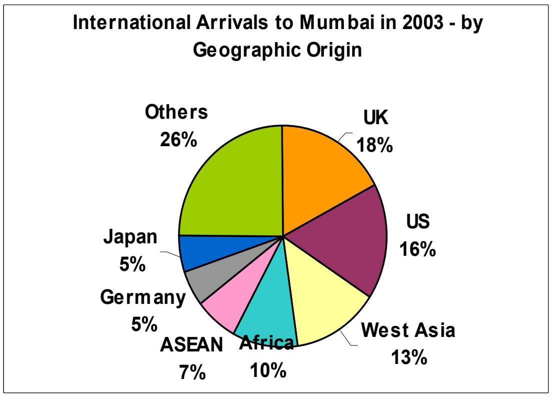
- Work in tandem with **department of tourism** to promote Mumbai/MMR as a 'film tourism' destination and attract foreign production companies offering shooting locations and post production works
- Facilitate **development/upgradation of studios and post production facilities** for attracting television and film companies
- Undertake improvements in the existing **film city** and redevelop it as an integrated facility for national & international companies on lines of Ramoji Film city in Hyderabad
- Facilitate **specialized courses** at the university level on various technical and creative aspects of movies, television, music and animation software to ensure availability of skilled manpower for this industry
- Address the issue of **piracy** by: constituting a regional anti-piracy force to carry out investigations and provide requisite information to the police; conducting anti piracy campaigns; creating public awareness and enforcing the Copyright Law; promoting digital technologies for assisting rights owners.
- **Rationalization of entertainment tax rates** in order to attract large entertainment companies and live events to Mumbai
- Set up an ongoing committee of private sector leaders with knowledge of the sector, specifically involved in furthering the media & entertainment sector

3.8 Tourism

Background

Mumbai is the "Gateway to India" for vast majority of international travelers. In 2004, the city received 813,092 international visitors, out of which 34% were from US and U.K. The international arrivals to Mumbai grew at a CAGR of 2.7% between 1992 and 2004 (figure 3.7). This is because of the presence of the international airport in the city as well as its position as a center for finance in India.

Figure 3.7: International tourist arrivals to Mumbai and break-up by geographic origin



Source: Government of India, Department of Tourism

However, despite such large number of international tourist arrivals, Mumbai region has not been able to become a tourist destination on the lines of London, Paris or even Kuala Lumpur and Singapore. These cities, apart from attracting business tourists, also attract a large number of leisure tourists.

At present, most of the international tourists coming to India prefer to move on to visit destinations such as Kerala, Goa and Rajasthan because there are not enough attractions in and around Mumbai to hold them here. Though the city has historic and natural advantages as a "gateway" to the country, it has not been able to leverage these either in order to position itself as a major tourism destination or to become an attractive destination for the wider "visiting friends and relatives" market.

Industry Size and Growth Trends

Many developed cities consider tourism as a vital driver of the economic, social, cultural and environmental well being of their city/country. In the conventional model, Governments looked at providing visitor accommodation facilities and promoting visitor attractions (like museums, galleries and cultural heritage sites). However, in the new paradigm, there is a great deal of emphasis on events, festivals and evening-based economic activity driven by theatres, cinemas, restaurants, etc., all of which attract tourists and day visitors as well as residents.

The industry also provides "quality of life" benefits through the varied range of visitor attractions and entertainment facilities offered, and by providing substantial economic activity and employment opportunities. In fact, tourism has a significant multiplier effect on the economy**. It is estimated that each rupee spent (by a tourist) changes hands 13 times, and that every hotel room generates direct employment to three persons and indirect employment to eight persons.**

In addition, tourism facilities can be important catalysts for, and components of, regeneration schemes that improve areas both for residents and tourists alike.
Travel and tourism is the world's largest industry. International tourism receipts accounted for approximately 6% of worldwide exports of goods and services. When considering service exports exclusively, the share of tourism exports increases to nearly 30 per cent. Many governments are recognizing the economic potential of tourism and thus formulating focused strategies and action plans to give a boost to this sector. **(See box: Tourism Action Plan of London)**

Tourism Action Plan of London

Identifying Tourism as a growth vector, the London Development Agency in association with the Mayor of London and 'Visit London' (the official website for London), developed the short-term London Tourism Action Plan for the period 2003-4 to 2005-6. The strategic objectives identified in the Action Plan include:

- Leadership and Promotion;
- Market development;
- Evidence and intelligence; and
- Product development.

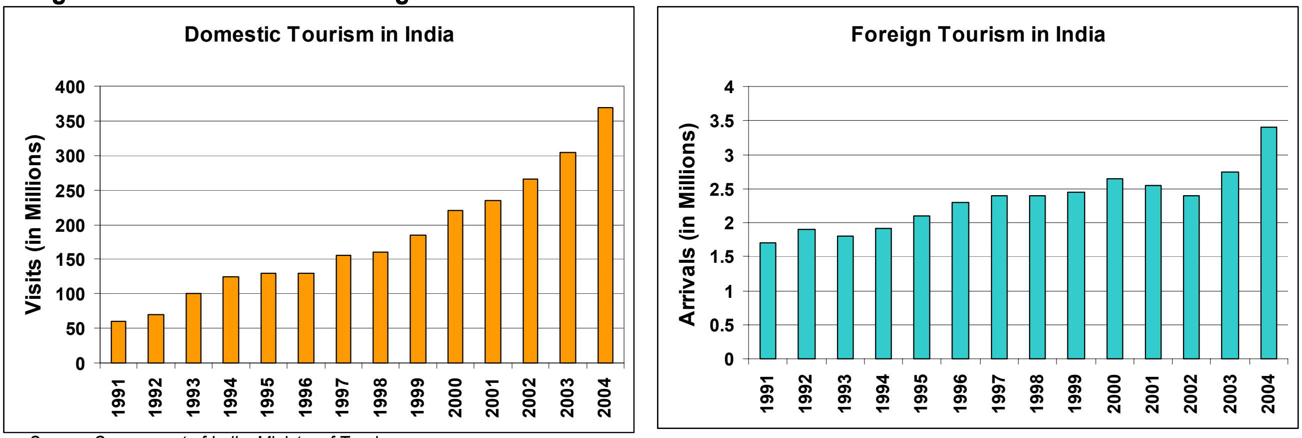
Some of the action initiatives outlined in the Plan include:

- Provide clear leadership and a voice for London in the Tourism Sector
- Marketing and promotion of a "World-Class City"
- **Develop a sense of "Welcome" to London for the arrival of business and leisure visitors**
- Develop public/private partnerships to maximize investment in tourism
- Ensure a step change in marketing through a clear integrated five-year marketing framework for the overseas and domestic markets
- **Develop the business tourism market**
- Promote the distribution of benefits of tourism across London
- Develop the Visiting Friends and Relatives market
- **Develop "Gateway" Partnership and Initiatives**
- **Explore the feasibility and development of an International Convention Center**
- Encourage the increase in supply and improvement in quality of visitor accommodation in London
- Develop an integrated London Visitor Information Strategy
- Web development and new technologies
- Provide business support to SMEs in the tourism sector to help improve quality of service and competitiveness
- Support the management of London's Late Night Economy and 24 hour city concept
- Identify and Develop Integrated Visitor Destinations in areas outside Central London.

According to the World Travel & Tourism Council (WTTC), India's travel and tourism industry generated USD 38.8 billion of total demand during 2004, directly accounting for 2.6% total employment and 2% of the GDP of the country and directly & indirectly for 5.6% of employment and 4.9% of total GDP.

Domestic tourist traffic in India has been growing at a pace of about 15% per annum over the period 1991-2004 (figure 3.8) and is estimated at over 350 million visits per annum (in 2004). International tourist arrivals to India on the other hand have been estimated at about 3.4 million in 2004. However, international traffic has been growing at a slower (and less steady) pace (5.48% p.a.) than domestic traffic and has only recently picked up (growth rates of 23.6% and 14.4% over 2003-04 and 2002-03 respectively).

Figure 3.8: Domestic and foreign tourist arrivals in India

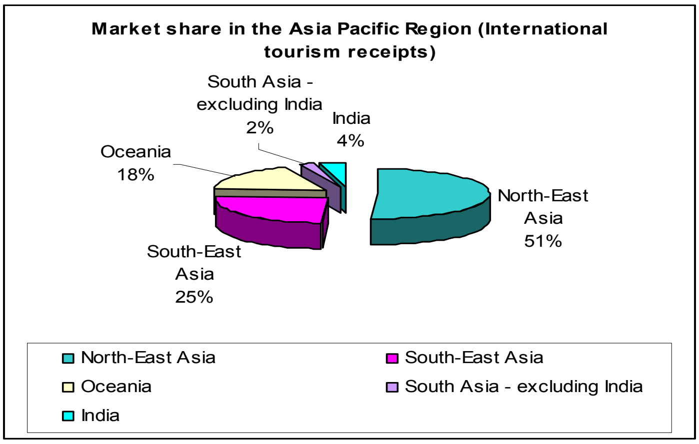


Source: Government of India, Ministry of Tourism

The growth in domestic tourist traffic may be ascribed in part to the rise in disposable income levels and availability of cheaper air travel. International tourist arrivals to India have been increasing partly due to an increase in the number of business travelers.

However, India currently accounts for a small 2.2% share of the region (Asia and the Pacific) in terms of international tourist arrivals and a 3.8% share in terms of international tourism receipts (figure 3.9), which indicates the tremendous potential for growth in international tourist traffic to the country. In fact, the number of foreign visitors into the country according to WTTC is expected to grow by over 7% per annum over the next decade and an attempt needs to be made to ensure that this growth rate is not only met but exceeded in the MMR.

Figure 3.9: Market share in Asia Pacific Region



Source: World Tourism Organization (WTO)

Critical Success Factors (CSFs) for the industry

The key factors that impact the growth of the tourism industry and enhance the tourism potential of a site include:

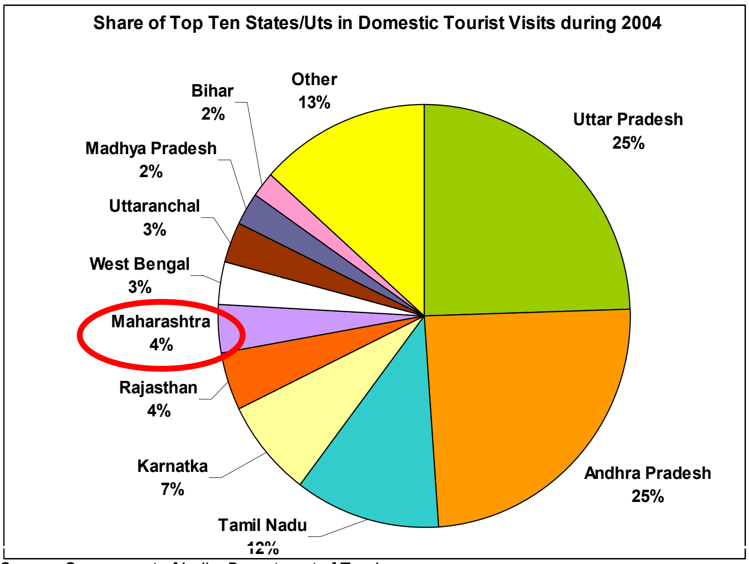
- Tourist site "products" that can attract tourists and enhance the overall quality of experience at the tourist site
- Adequate infrastructure facilities including:
  - Primary tourist facilities and services (the value and quality of accommodation/hotels, restaurants, and travel and tour services);
  - Secondary tourist facilities and services (shopping, recreation, entertainment and visitor information services);
  - Tertiary tourist facilities and services (health services and care, emergency and safety services, financial services and personal services).

- Adequate access infrastructure to tourist location and to tourist sites within the location, i.e. connectivity by road/air/rail
- Support urban infrastructure at tourist locations
- Access to adequate and good quality information to the tourists

Maharashtra's advantages

Maharashtra today accounts for 4% of the total domestic visitors in the country and ranks at sixth in terms of share in domestic tourist visits in India in 2004 (figure 3.10).

Figure 3.10: Share of top ten states/UTs in domestic tourist visits in 2004



Source: Government of India, Department of Tourism

This is a very small share given the region's potential in almost all tourism segments, which are as follows:

- **Leisure Tourism**, with its natural beaches, caves, forts, hill stations, sanctuaries, pilgrim centers Some of the places of tourist interest are shown in the exhibit below.
- **Heritage Tourism** - specifically, Ajanta and Ellora caves as well as Chhatrapati Shivaji Terminus (formerly known as Victoria Terminus) and Elephanta caves, which have been declared as 'World Heritage Sites'.

CAVES
- Ajanta
- Ellora
- Elaphanta

HILL STATIONS
- Amboli
- Bhandaradara
- Chikhaldara Hills
- Jawhar
- Khandala, Lonavala and Karla
- Khindesy Talao
- Mahabaleshwar
- Malshej Ghat
- Matheran
- Panchgani
- Panhala
- Toranmal

LEISURE
- Bhatye
- Igatpuri Resort
- Lonar
- Nawegaon Bandh
- Panshet

BEACHES
- Dahanu-Bordi
- Ganapatipule
- Mandwa and Kihim
- Marve, Manori and Gorai
- Shriwardhan-Harihareshwar
- Tarkarli
- Velneshwar
- Vengurla - Malvan

FORTS
- Bassein
- Daulatabad
- Gavilgad
- Ghodbunder
- Murud-Janjira
- Murud-Harnai
- Panhala
- Raigad
- Sinhagad
- Vijaydurg-Sindhudurg

SANCTUARIES
- Bharmragarh
- Bor Dam
- Chaprala Wildlife Sanctuary
- Chikhaldara
- Dajipur
- Nagzira
- Navegaon National Park
- Pench National Park
- Tadoba National Park
- Tipeshwer

PILGRIM CENTRES *(illustrative)*
- Ashta Vinayak
- Khopoli
- Mahalaxmi Kolhapur
- Mahalaxmi Temple, Mumbai
- Nashik
- Shirdi
- Siddhivinayak Temple
- Haji Ali Shrine
- Titwala
- Wardha

- **Business Tourism** - Mumbai, also being the business/commercial and entertainment capital of India, can be positioned as a **destination for conventions, exhibitions and conferences.** The city can take cues from Mexico, which focuses on business tourism and has positioned itself as a "conventions destination". **(See box: Mexico Tourism Board's focus on Business Tourism").**

Mexico Tourism Board's focus on Business Tourism

Between 1999 and 2002, the number of conferences and conventions held in Mexico increased by 551% and the number of exhibitions by 93%. Mexico's business tourism infrastructure is ideal for organizers – 56 conference and convention centres, 245,000 rooms available for people attending events and access to over 70 international and national destinations.

Identifying this area as a niche segment for promoting tourism, the Mexico Tourism Board launched Tasa Cero in February 2004 to increase the amount of business tourism coming into the country. Tasa Cero, or Zero Tax, is an amendment to the VAT law for international meetings, conventions, fairs and exhibitions, which exempts such events from VAT.

Mexico is the first country in the world to introduce initiative of Zero Tax, the latest in a line of initiatives between the Mexican Government and private sector to improve business tourism following the opening of the Office for Conferences and Conventions in Mexico City in October 2003. The initiative aims to make Mexico more competitive in the international events market.

Following the passing of this amendment, congresses, conventions and meetings are now considered an export service by the Mexican Government. High profile international meetings hosted recently in Mexico include

- 5th Ministerial Conference of the World Trade Organization (WTO) in Cancun,
- United Nations Conference on Funding for Development at Monterrey,
- Asia Pacific Economic Cooperation (APEC) conferences in Los Cabos, and
- In September 2003, Mexico hosted its first ever **world tourism exhibition** at the Business and Trade Centre (Banamex Centre) in Mexico City.

Suggested interventions

Given tourism's potential in Maharashtra and specifically MMR, and the sector employment generation and growth potential, the state government should take steps in order to increase the number of tourists visiting MMR, prolonging stay (and therefore also money spent) and enhancing the overall tourist experience. To this end, the following interventions are suggested:

- Develop a co-ordinated marketing and promotion strategy (along with short, medium and long-term action plans) for appropriate **branding and marketing of the region** as a "Gateway" to India". For this, it is important to strengthen private and public sector engagement. Mobilize well known industry leaders to play a larger role in promotion of the state and consider setting up an ongoing committee of private sector leaders specifically involved in furthering tourism. A possible strategy which capitalizes on MMR's strengths and existing position as a key gateway for tourists (especially international travelers visiting India), is to focus on business tourism and/or.
- Develop **tourist attractions ("products") within MMR** in order to improve MMR's offer and prolong average stay in the region. Specifically, evaluate the feasibility of setting up a **Bollywood City (similar to Universal Studios), Recreation center (like Sentosa Island) and/or World class Amusement Park (like Disneyland)and an International Convention Center.** The latter is especially important if MMR is to be positioned as a business tourism hub as availability of high quality business facilities is an essential pre-requisite for the same. Also consider promoting sporting events, golf courses, etc. to generate tourist interest.
- Support the development of **destinations near Mumbai on a fast track mode**: There is potential for developing destinations near MMR as tourist attractions for one-day trips from the main place of stay. This is on the lines of a "hub-and-spoke" model and would promote average stay in MMR itself. For

example, there is a proposal for development of "Gorai-Manori-Uttan', which is a few kilometers away from Mumbai, as a 'Special Entertainment Zone' or Recreation Island. Other potential destinations include Khandala, Lonavala and Karla hill stations, which are close to Mumbai. This would support the development of emerging destinations as well as help distribute the benefits of tourism across MMR. The state government should identify and address any development needs (provision of infrastructure, accommodation, other amenities) in these areas in order to allow them to grow as visitor destinations

- Develop a tourism marketing framework with **emphasis on targeting joint/repeat leisure visits with family and friends** and identify innovative ways to create business tourism packages which combine travel and accommodation packages with MMR's unique attractions
- Improve the **quality of visitor accommodation** and increase the quality of visitor information/services by effectively engaging the private sector in these activities (for example in running tourist information centers). Building public-private partnerships would maximize investment and improve the overall quality of visitor experience. For this purpose, the state government should begin by identifying potential lead agencies/partners
- Ensure that these emerging visitor destinations are supported with promotional campaigns and included in relevant sources of visitor information
- Cities such as Pune, with their proximity to MMR could also be developed as **tourist 'circuits' with MMR as the base**. Pune in particular is now easily accessible from Mumbai and could be developed as a center for adventure tourism
- Improve the (qualitative and quantitative) research capability within the tourism department, to monitor and forecast changes as well as support the marketing frameworks and measure the effectiveness of marketing campaigns

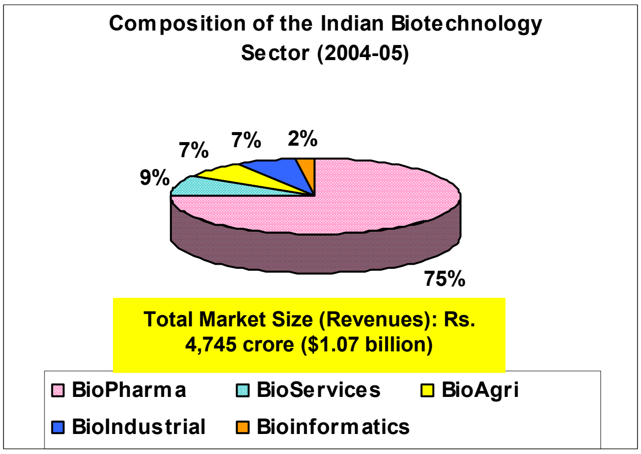
3.9 Biotechnology

Statistics and growth trends

Biotechnology, which means use of biological processes ('bio') to solve problems or make useful products ('technology') is amongst the fastest growing industries in the global economy. The global biotechnology industry based on financials of public companies generated revenues of USD 46.6 billion in 2003 according to Ernst & Young. The largest share of global biotechnology revenues is generated by the US (77%) followed by Europe (16%), Canada (4%) and Asia-Pacific (3%).

The Indian biotechnology sector is currently nascent and accounts for a mere 1% of the global biotechnology market. However, in the last few years India has also emerged as a significant player in the global biotech industry. According to the BioSpectrum-ABLE10 industry survey 2005, the Indian industry recorded 36.6 percent growth in 2004-05, to reach revenues of Rs. 4,745 crore ($1.07 billion), up from the previous year's revised figure of Rs. 3,475 crore ($788 million) (figure 3.11).

Figure 3.11: Composition of the Indian Biotechnology Sector (2004-05)



Source: BioSpectrum-ABLE industry survey 2004-05

Of the total market size, the share of various segments has been estimated as follows:

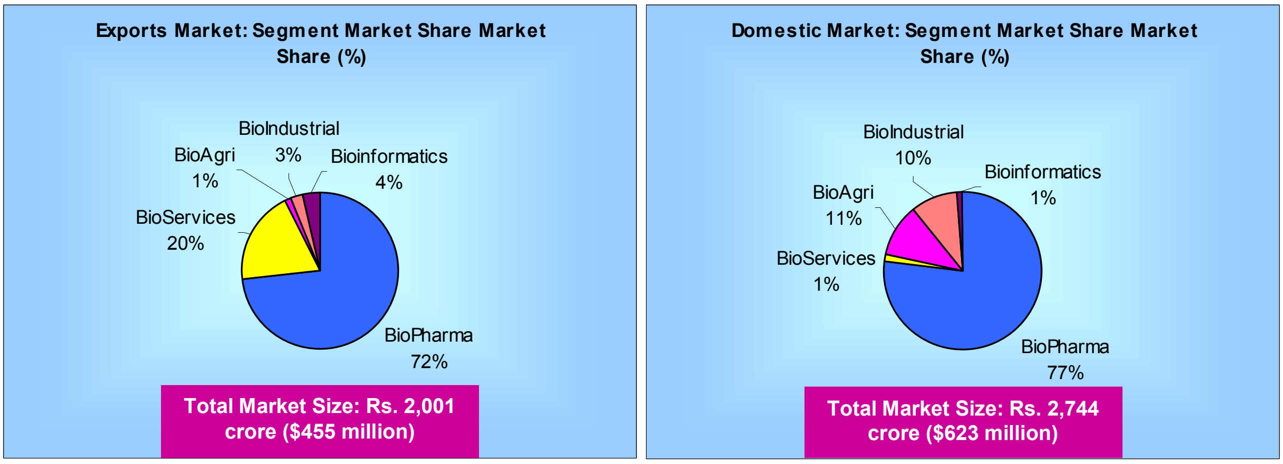
- **BioPharma** comprises vaccines, therapeutics, diagnostics and animal health care products and accounted for over 75% of the market and is the single largest contributor to the total business. The segment registered close to 30% growth, primarily driven by the vaccines business
- **BioServices** (market share of 8.96%) comprises clinical research, contract research and contract manufacturing. The BioServices segment registered 54.6% growth
- The **BioAgri** market, which consists of Bt cotton in the seeds category and bio-pesticides and bio-fertilisers, had a market share of 6.95 percent. This sector was the fastest growing, with a growth rate of nearly 154%
- The **BioIndustrial** (market share of 6.74 percent) segment includes enzymes, organic amino acids, and yeast and yeast-based products. Registered 34.45% growth
- **Bioinformatics** (the science of informatics as applied to biological research) had a share of 2.11%. Registered 25% growth

Biotech exports (valued at Rs. 2,001 crore) contributed 42.2 percent of the total biotech business in 2004-05. The BioPharma sector accounted for the largest share (73.2%) of exports. This was followed by the BioServices segment (19.5% share), and then by Bioinformatics (3.6%), BioIndustrial (2.6%) and BioAgri (1.2% of total exports).

[10] Association of Biotech led Companies

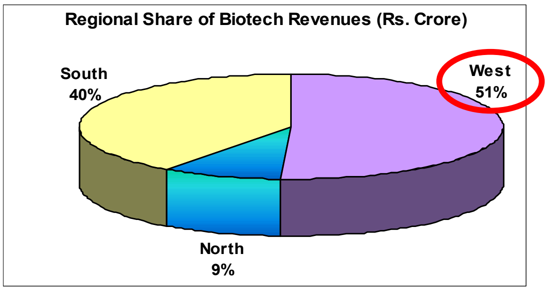
The domestic business was mainly driven by BioPharma sales (76.8% share). This was followed by BioAgri (11.2% share) and BioIndustrial (9.8%) segments. Bioinformatics and BioServices are as yet small markets for domestic business and accounted for 1.0% and 1.2% share of the total domestic market respectively (figure 3.12).

Figure 3.12: Segment market share in domestic and exports market



Source: BioSpectrum-ABLE industry survey 2004-05

Figure 3.13: Regional share of biotech revenues



Source: BioSpectrum-ABLE industry survey 2004-05

The industry is well spread across the country and comprises 280 companies that are directly involved in the biotech business and another 120 that supply technology products to these biotech companies. Several states have announced biotech policies and provide incentives to set up biotech parks to promote the industry.

However the biocluster in the Western region is the largest in terms of revenues generated. It is centered around Aurangabad, Ahmedabad, Mumbai and Pune. The southern cluster comprises Bangalore, Hyderabad and Chennai while the northern cluster is primarily located in the Delhi-Gurgaon-Noida region (figure 3.13).

Cities such as Bangalore and Hyderabad have become important destinations for biotech companies because of proactive and supportive state governments, a strong pharma base, and an entrepreneurship-driven culture (see box: Initiatives taken by the

Initiatives taken by the Government of Andhra Pradesh

The Andhra Pradesh Government has identified biotechnology as one of the key potential growth areas. 'Genome Valley' is the first state-of-the-art biotech cluster in India for life sciences research, training, and manufacturing activities. The state has taken the following initiatives for this sector:

- Set up a venture capital fund with a corpus of $30 million (Rs. 150 crore) for promoting biotech companies. The AP biotech venture fund had a seed capital of Rs. 10 crore, besides contributions from APIDC and Dynam Venture East, USA.
- An international life sciences institute is coming up in Genome Valley for excellence in industry-driven life sciences research. ICMR also plans to set up a national animal house for bio-medical research in collaboration with National Institute of Health, USA. The state government has also embarked on setting up an agri biotech park in the ICRISAT campus near Hyderabad and a marine biotech mark at Vishakapatnam.
- The state has also become home to the rice genome sequencing project by the University of Hyderabad and the buffalo genome project by CCMB, while an umbilical cord stem cell bank has been set up by Pacific Health Care Holdings, Singapore.

Andhra Pradesh Government).

Biotech parks have also been set up in a number of states and some examples of parks that have been set up (or are in the process of being set up) include:

- ICICI Knowledge Park situated near Hyderabad, developed by ICICI Bank Ltd. in partnership with the Govt. of Andhra Pradesh
- Shapoorji Pallonji Biotech Park set up as a joint venture between Shapoorji Pallonji Co. Pvt. Ltd. and the Govt. of Andhra Pradesh, situated in Genome Valley, Hyderabad
- Women's biotechnology park, Chennai sponsored by Tamil Nadu Government, Department of Biotechnology (Govt. of India), Tamil Nadu Industrial Development Corporation and M.S. Swaminathan Research Foundation in order to harness the benefits of biotechnology to provide self-employment openings to women entrepreneurs
- TICEL Biopark Ltd. set up by the Tamil Nadu Industrial Development Corporation Ltd. (TIDCO) in Chennai
- Punjab Biotech Park, which is a joint effort by Beckons Industries Ltd. and Punjab State Council for Science & Technology (PSCST) and focuses on catalyzing SMEs
- Biotech Park Lucknow, being sponsored by Department of Biotechnology (DBT), Government of India and Department of Science & Technology, Govt. of UP
- Biotech Parks at Sitapura, Jaipur; Boranada (Jodhpur); Bhiwadi (Alwar) developed by RIICO (Rajasthan State Industrial Development & Investment Corporation Ltd.)

Some examples of Biotechnology Park and medicinal plant park initiatives by developing countries are summarized in table 3.1.

Table 3.1: Examples of Biotechnology Park and Medicinal Plant Park initiatives by developing countries

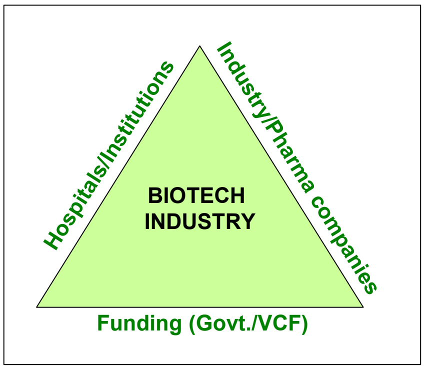
Country	Feature(s)	Location
Brazil	Promote R&D in biotech business through transfer of technology and research expertise to the private sector	Polo Bio Rio Park, Rio de Janeiro
China	Biotechnology Financing Zones planned in Taiwanese science parks with focus on development and commercialization of high-quality biotech products:--Hepatitis B vaccine, diagnostic kits, herbal and medicinal drugs	• Changwa coastal industrial park • Hsinchu science park • Tainan science park • Tainan technology park • Yunlin technology industrial park
	Development of a Biotech Valley Concept for food, medicine, floriculture, agribiotech, bioprocessing of raw materials	Yunnan area which includes the Kunming Hi Tech Incubation zone, and the Kunming Economic zone with planned biotech corridor that links up research centers and several industrial parks
	Institute of Medicinal Plants established in 1983	Medicinal plant farms in Yunnan, Hainan and Guangx provinces
Egypt	Commercialization of Biotech research results for targeted end-users	Establishment of a specialized BIOGRO Unit at the Agricultural Genetic Engineering Research Institute (AGERI), Giza, to interact with the Genetic Engineering Science Unit (GESU) for speeding up commercialization of high-quality products and services

Country	Feature(s)	Location
	Transfer of research into resource businesses and products; biotech markets need to be developed	Development of biotechnology in bio-based incubators established in Assiut, Banha, and Mansoura University; science industrial parks planned
	Use of best practices in management of medicinal plants in St. Katherine's protectorate in the Sinai Farmaya Laboratory	Conservation of medicinal plants in arid ecosystems; management of endangered plants; establishment of small /medium -scale enterprises; protection of intellectual property rights in medicinal plant parks
Guatemala	Farmaya Laboratory	Organic cultivation of medicinal plants, pharmacological research, production of plant-derived pharmaceuticals, development of protocols for safe use and screening of 700 different plants. 15 pharmaceutical products developed using traditional knowledge of indigenous and rural groups
Malaysia	Emerging Technologies-manufacture of medical and scientific instruments; advanced biomaterials; contract R&D services	Kulum Hi-tech Park. Kuala Lumpur
Nepal	Herbal and medicinal plant In Ayurvedic medicine	Medicinal plants cultivated in Doti, Shivpuri, Tistung, Tarakav and Urindavan herbal farms
Singapore	Pharma Zone for biotech and pharmaceutical companies	Agri-Bio Park -six agrotechnology parks being established to produce ornamental flowers, plants, food fish, ornamental fishes, and vegetables
Sri Lanka	Inventorization of plant genetic resources, medicinal plants and taxonomic data analyses	Establishment of a Women's Biotechnology Park foreseen
South Africa	Agricultural engineering, Plant production and animal wildlife healthcare	Porsequor Technopark, Pretoria
	Catalyse R & D interaction between biotech companies and universities in the Western Cape; natural products research	Technopark in Stellenbosch with focus on agriculture, food, aquaculture and marine products Conservation and use of east and southern Africa's medicinal plants

Source: Electronic Journal of Biotechnology and IMaCS Research

The three pillars that would facilitate the development of the biotech industry are (a) medical and educational institutions that would provide support in the form of training and facilitating product development; (b) industry including pharma companies who develop the real life product; and (c) finance, which may come from various sources including the state government and venture capital funds (figure 3.18).

Figure 3.14: Framework for study of biotech industry



The North Carolina Biotechnology Development Centre

- The Biotechnology Center at the University of North Carolina is a private, not-for-profit organization created over 20 years ago, initially as part of state government, but very quickly spun out
- The Centre receives an appropriation from the state government every year which they initially invested in a variety of programs, mainly for infrastructure support.
- Over the years, as discoveries that had some commercial potential were being made in these universities, the centre started sharing the resources and putting in place some funding programs to help pull those technologies out of the universities. Loan programs were created to provide very favorable terms to help start companies and the centre worked closely with partner organizations in the community.
- *"Our job is really to help bring everybody together to move things along or to provide funding where we can to stimulate economic development".*
- The Centre has three types of partnership programs:

1. **Collaborative funding grants** – these are grants that are funded at the Biotech Centre and proposals are invited which are designed to stimulate collaboration between industry and the universities
2. **Intellectual exchange groups –** these groups are completely targeted at facilitating discussion among academic scientists at all levels and many of the people who come are at the graduate student level and industry scientists
3. **Biomanufacturing training network –** this is an integrated training network developed in partnership between the Biotechnology Center, their university partners, and the community colleges that will "take post high school students through appropriate certificate programs all the way up to PhD level scientists"

Source: Speech ("Graduate Education: Building Public Partnerships") by Leslie Alexandre, President and CEO, The North Carolina Biotechnology Center

Specifically, the role of hospitals and educational institutions is to provide research support to industry. Several universities in the US (the University of North Carolina being one example) receive federal and state government grants which they invest in a variety of programs (see box: The North Carolina Biotechnology Development Centre) such as funding the development of innovative content and new ways of delivering the content, and also in training programs both for students, and also for teachers to teach about biotechnology in the classroom.

Going forward, the availability of people with the right skills to be able to deal with the complicated processes required to develop biologics and complicated new therapeutics and diagnostics will be a key factor that will determine the shape of the industry. This is just one of the areas where partnerships – between institutions, industry and government/venture capital – are likely to prove crucial. In Maharashtra's context, it will be useful for the state to leverage the presence of a variety of medical and educational institutions on the one hand and pharma companies on the other hand.

Critical Success Factors (CSFs) for the industry

The key success factors for development of the biotech industry in a region include:

- Presence of a strong base of pharma and biotech manufacturers and rich biodiversity
- Availability of a large number of high caliber scientists and technologists
- Availability of funding (private equity, government funds and tax-free benefits, venture capital)
- Existence of a large number of research institutes/R&D establishments and educational institutions in biosciences and IT
- Support from state governments in the form of funding for basic research, policy support, special incentives

- Existence of a strong technology base
- Risk taking culture that encourages entrepreneurism
- Protection for intellectual property and a regulatory system that fosters confidence in the safety and efficacy of new products
- Presence of an existing, heterogeneous biotech cluster which enables companies with interests in diverse areas to set up operations and existence of biotech parks which promotes cluster advantages

Maharashtra's current industry base

Mumbai is home to some of the leading pharmaceutical companies such as Roche, GlaxoSmithKline, Aventis and Pfizer. The Serum Institute of India Ltd., which is the second largest biotech group in the country, is established in Pune along with the Venkateshwara Hatcheries group. Hindustan Antibiotics Ltd. set up its Penicillin plant in Pune in 1954. Other leading pharmaceutical companies such as Wockhardt, Cipla, Lupin and Nicholas Piramal are also based in Maharashtra.

The State Government announced the Maharashtra Biotech Policy in 2001. It is understood that a revised policy is under the consideration of the government. The 2001 policy included various strategic initiatives in order to develop the biotechnology industry in the state, which are as follows:

- Institutional mechanisms
  - Establishment of a Maharashtra Biotechnology Board to ensure timely implementation of the policy and liaison with the central government
  - Setting up of a Biotechnology Development Fund with an initial corpus of Rs. 50 crore
  - Establishment of the Maharashtra Biotechnology Commission, the key implementation body, for effective utilization of the Biotechnology Development Fund

- Financial incentives
  - Power tariff at industrial rates to biotechnology industries engaged in the production of high-end products and at agricultural rates to agricultural biotechnology companies
  - Exemption from paying electricity duty
  - Captive power generation permitted
  - Special incentives as per the incentive scheme 2001, in terms of capital subsidy, exemption from payment of stamp duty and registration fees and refund of octroi and similar levies
  - Twice the permissible Floor Space Index (FSI) for biotechnology units in parks promoted by MIDC and other public bodies
  - Land at concessional rates to "Centers of Excellence" which cover aspects of cutting edge research and development in the areas of life sciences and technology, i.e. bioinformatics

- Incentives for promoting biotechnology parks
  - Equity stake by the government (in the form of land allotted for the projects) in such ventures
  - Units engaged in agricultural biotechnology ventures to be designated as agricultural industries, with the extension of all incentives, exemptions and benefits accruing to that industry to these units
  - Land allotment by MIDC at industrial rates to such industrial units in areas under its jurisdiction

- Infrastructural Support
  - Biotech parks to offer facilities such as Business Facilitation Centers (BFCs) which will be equipped to provide services such as handholding, technology transfer and access services, networking, information and

support; physical infrastructure; connectivity with academic and research institutions; land for building residential complexes
  - Creating a Biotechnology Resource Center, a reference center for certification of products after testing them; and an experimental animal facility

- Intellectual Property Rights (IPR)
  - Government to launch programmes to create awareness about IPRs among users
  - A special manpower training programme to be developed at the University of Pune; special course at postgraduate level in HRD to be introduced to cover aspects of IPR; revise and create new curricula for the law faculty to incorporate patent law and international IPR related law courses

A Maharashtra Biotech Board and a 13-member Maharashtra Biotech Commission have been set up following the 2001 policy. The website of the Maharashtra Biotech Commission (www.mahabiotech.org) provides useful information on the biotech industry in Maharashtra.

The Government of Maharashtra is promoting a biopharma park at Hinjewadi in Pune and a bioagri park at Jalna near Aurangabad. The 100-acre biopharma park at Pune is a joint venture between the Maharashtra Industrial Development Corporation (MIDC) and The Chatterjee Group (TCG) in which TCG holds 88% stake and MIDC holds the balance. It is hoped that proximity to the Information Technology Park will attract the bioinformatics sector to this park. Thirteen of 19 plots have already been allotted and the park is expected to be fully functional in a year's time.

The bio-agri park at Jalna has been set up by MIDC in collaboration with Maharashtra Hybrid Seeds Company (Mahyco). Mahyco has already set up a biotech center at Dawalwadi near Jalna. The Mahyco Research Foundation (MRF) and its promoters are helping in the conceptualization, design and implementation of the park. MRF will also establish a research facility in the park which will be available for use by other biotech companies. The production as well as research facilities of some major bioagri companies, such as, Mahyco, Syngenta, Seminis, Monsanto, Mahendra Hybrid Seeds, Nath Seeds, and Ajeet Seeds Ltd. are already based in the Jalna belt.

Opportunities for Maharashtra State

Maharashtra is ideally placed to attract investments in biotechnology because of the presence of top international and national pharmaceutical organizations and research centers in the state. The state is home for 20% of the 20,000 pharmaceutical companies in India and accounts for 40% of the turnover of the national drugs & pharmaceutical industry. Apart from this, the state's strong base of agriculture and pharmaceutical industry should offer tremendous growth opportunities for biotech industries in the state.

The state also offers excellent intellectual infrastructure – about 1,000 institutions producing about 163,000 trained technical personnel each year. The Government is also promoting IT and biotech parks, R&D centers and pilot plant facilities for contract research. The presence of a large number of colleges (including Pune University which has one of the best bioinformatics programs in the country), research institutes (such as The Serum Institute and the National Chemical Laboratory), gives Pune a natural advantage in forming a successful bio-cluster in the state. There is scope for developing Mumbai-Pune as a strategic corridor for the biotech sector, essentially enabled by the presence of a large number of pharma companies in this corridor. To this end, a biotech park has been envisaged at Kalamboli (Navi Mumbai) by City and Industrial Corporation of Maharashtra (CIDCO).

The presence of a large pharmaceutical sector in the state is expected to generate interest among the potential investors in the bio-pharma and medicinal biotech segments. Similarly, the presence of a strong IT infrastructure suggests potential in bioinformatics and IT applications. Internationally, future areas of opportunity for biotech have been identified as follows (table 3.2):

Table 3.2: Scope and opportunities for biotech

S. No.	Sector of application	Scope and opportunities
1.	Agriculture and allied sector	Development of disease resistant & pest repellent high yielding plant & crop varieties, high breed animals of improved genetic character, fast multiplication of improved genetic material of uniform quality, production of bio-fertilizers and bio-pesticides
2.	Industry sector	Production of organic acids, organic solvents, fine chemicals, enzymes, antibiotics, amino acids, vitamins, etc.
3.	Food and Beverages	Production of fermented foods and drinks, single cell protein, sweeteners, flavors and flavor enhancers, dairy products, food enzymes, mushroom, etc.
4.	Medical and health	Production of vaccines, immobilized enzyme based biosensors, monoclonal antibodies based diagnostic kits, growth hormones, etc.
5.	Environment and energy	Treatment of industrial and municipal waste water, methane from agro-based or organic content rich industrial wastes, biological hydrogen, alcohol as fuel, development of suitable plant as environment protector, etc.

Source:
IMaCS research

Attractive segments for Biotech in India

For India, attractive segments are medical biotech (given the strengths in pharmaceuticals), agri biotech (second largest food producer, rich biodiversity and skilled and low cost human-power) and services segment. The reasons for the anticipated growth in the services segment include:

- With an increasing number of pharmaceutical companies finding it difficult to conduct the entire drug discovery process in-house they are looking for ways to minimize costs. India has become a very attractive base as the cost of infrastructure is relatively lower compared to other nations
- Foreign companies also benefit from the cheaper qualified workforce available in India
- India produces enough qualified graduates each year thus companies looking to expand their operations can easily do so without facing a shortage in labor

It is estimated that vaccines, contract research, agriculture and human health sectors comprise two thirds of the total market. It is further estimated that **health care products** would dominate the Indian biotech market, accounting for roughly 40% of the total market by year 2010, followed by **agriculture** at about 30%. It is also estimated that contract research and bioinformatics would pick up and account for as much as 25% of the biotech market. An estimation by the Confederation of Indian Industry (CII) shows that the agri-biotech segment would see growth rates of as much as 60%, diagnostic and therapeutics of about 25% and vaccines of about 15%.

Maharashtra should also focus on the bio-pharma/medical segment given its strengths in these areas. It could increasingly look at opportunities in the contract research and bioinformatics segments as well. Contract opportunities are likely to arise both in clinical trials (which is more of a volumes game) and in high end research (which is more high-value and high-investment). While

clinical trials related work will lead to creation of more jobs, research will help Maharashtra differentiate itself. Therefore we suggest that the government starts by focusing on clinical trials and in the longer term aim at a mix of both clinical trials and high end research.

Suggested interventions

The Government of Maharashtra has identified biotech as a high growth opportunity for the state. Maharashtra's biotech policy lists several initiatives that the state plans to take to accelerate the growth of this sector. The state's role is envisaged as an enabler and facilitator and emphasis is given to protection of intellectual property rights. The policy lists various financial incentives to be provided to biotech units.

Institute of Bioinformatics and Applied Biotechnology (IBAB), Bangalore

The Government of Karnataka in association with ICICI has established the Institute of Bioinformatics and Applied Biotechnology (IBAB) in ITPL at Whitefield, Bangalore. The objectives of this institute are:

- Offer masters and doctoral programs in bioinformatics and applied biotechnology
- Carry out R&D in the field of bioinformatics and related areas
- Undertake short-term training programmes
- Promote and run incubation centers

The IBAB expects to be financially self-sustainable through fees for start-up incubation, contract research and its bioinformatics courses, and, in the long run, through generation of Intellectual Property.

We understand that the revised Biotech Policy is under preparation and we suggest the following additional interventions:

- Set up a **strategic corridor from Mumbai to Pune for the development of the biotech industry** which would capitalize on the strengths of both regions
- **Promote the state** and especially the Mumbai-Pune corridor as an attractive destination for biotechnology research and manufacturing
- Provide assistance for setting up more **biotech parks** in the state by e.g. by providing land or by taking an equity stake in the project and providing basic infrastructure for the park
- **Focus on academic infrastructure and throughput**: Specifically to enable availability of skilled specialized labor for the industry, set up a dedicated institute of bioinformatics and applied biotechnology to facilitate R&D, undertake training programs and set up incubators. The Government of Karnataka has set up such an institute in association with ICICI (see box: Institute of Bioinformatics and Applied Biotechnology (IBAB), Bangalore). Also, introduce courses in biotechnology, biomanufacturing and bioinformatics at the graduate and post-graduate levels throughout the state in order to build a future supply of trained workers. Provide initial funding assistance in the form of grants and take steps to facilitate partnerships between the institute(s) and industry both for training programs and development assistance
- **Encourage venture capital funds** to operate in the state and consider forming joint ventures with some venture capital funds that fund biotech start-ups
- Set up a university of medical life sciences to facilitate research in pharmaceuticals and disease prevention and cure and provide opportunities for clinical drug testing and drug development
- Provide incentives for setting up institutes of training within biotech parks for training and extension for farmers and technicians in the area of biotechnology
- Create supporting institutions for the industry for industry-driven life sciences research by providing grants for setting up private R&D facilities in universities and also help develop outside companies with specific expertise, i.e. contract research organizations (CROs) with good manufacturing practices
- Ensure single window clearance for quick clearances to projects in biotech

- Simplify labor and other laws in biotech parks e.g. by exempting biotech units from the provisions of the Contract Labor Act, allowing three-shift operations, permitting flexibility in opening and closing hours, setting up special industrial tribunals for settlement of disputes that arise in units located in biotech parks
- Provide adequate IPR protection and simpler patenting norms. Establish a special cell to develop an online database on patents and advise entrepreneurs on how to file patents and protect IPR. Also take steps to cover aspects of patent law and international IPR related law in law programs as stated in the 2001 policy

3.10 Textiles

Background

As part of our overall recommendations on economic growth, one of the key recommendations is about reviving manufacturing in MMR. In this context, this section presents key recommendations to revive Textiles (more as an illustration) industry in MMR. Within MMR, the textile industry is currently concentrated in Thane (accounts for 69% of value added in the sector) followed by Mumbai (23%) and Raigad (8%)

Maharashtra state has been a traditional stronghold in the textile industry, as is evident from the following:

- Has **strong industry presence across the value chain** - yarn, fabric, process houses, garments
- Accounts for about 65 million kg. of cotton production, which is 25% of the country's total. The production of cotton yarn is 272 million kg., which is 12% of the country's total. The state has an installed capacity of 16.6 lakh spindles, which is17% of country's total. It also has the largest number (560) of 100% EOUs.
- Has one of the best available skilled labor force in textiles due to the existence of **traditional textile centers - Mumbai, Sholapur, Amravati etc.**
- Has one of the highest state domestic products and is host to a burgeoning middle class, which makes it one of the **largest consumption centers**

However, with the closure of several textile mills in Mumbai due to combination of social, political and business viability reasons, the contribution of textiles in Mumbai's economy has declined over the years. This sub-section outlines the opportunities that have emerged with the phasing out of the multi-fibre agreement (MFA), which set export quotas on all textile manufacturing nations, has shaped the global garment trade over the last three decades. The **MFA has been phased out with effect from 1st January, 2005 (and replaced with the Agreement on Textiles and Clothing). This presents an opportunity for Indian firms (and also firms in MMR) to increase exports in sectors where they have revealed competitive strength, and also enter into market segments where they had not previously been able to compete.**

The size of the Indian textile market is estimated at around $45 billion, out of which exports contribute $15 billion. The global textile and clothing industry is estimated to be worth USD 395 billion plus, with clothing accounting for 60% of the market and textiles the balance 40%. While the US and EU together account for 64% of the clothing and 39% of the textile market, with dismantling of quotas, the global textile trade is at an inflection point. **In the post MFA era, projections[11] indicate that the Indian textile sector is likely to grow to a size of $100 billion by 2010 including exports of $50 billion.** With increased thrust on low cost outsourcing by retail giants such as Wal-Mart, JC Penny, Tommy Hilfiger, TESCO, it is expected that India's current 3.5% share of global trade will double over the next five years.

The Indian textile and apparel sector is also expected to create abut 10 million job opportunities, of which 5 million would be direct jobs and another 5 million would be created in textile-related allied sectors. This

[11] `Textile sector of India: Strengths, weaknesses, opportunities and threat in the quota-free regime' conducted by the Associated Chambers of Commerce and Industry (Assocham)

shows the opportunity for growth, and sets the context for a massive reforms and modernization drive for the Indian textile sector.

At the same time, the phase-out of quotas will present numerous challenges and increased competition from countries such as China and Pakistan. The World Trade Organisation (WTO) predicts that within two years China could control about 50 percent of the world's textile market. However, India could still be the second largest beneficiary after China, scoring over peers such as Pakistan, Bangladesh and Sri Lanka, if it capitalizes on its strengths and the emerging opportunities.

A host of policies and regulations relating to firm size, product composition, labour and taxation; combined with inadequate export infrastructure and cumbersome customs procedures have limited the capacity and incentives of textile firms to pursue adjustment and modernisation. The necessary efficiency gains require both very large private modernization investments and extensive government regulatory changes.

Critical Success Factors (CSFs) for the industry

The key success factors for development of the textiles industry in a region include:

- Presence of a **strong base of producers across the textile value chain**
- **Low cost sourcing of cotton**
- Availability of **skilled labor force**
- Wide product range and **superior quality standards**
- **State of the art manufacturing plants** with large capacities **and fully integrated facilities**
- Availability of a **large consumer base** and presence of large consumption centers
- **Strong relationships with global retailers** and fashion brands for capitalizing on the textile outsourcing boom
- Designing and fashion capabilities
- Focus on production of good quality fabric, which is a direct result of the size of the average firm in the industry, i.e. **consolidation/economies of scale** is likely to be a CSF for producing better quality fabric and therefore leading to growth of the industry
- **Relaxation in government regulations** and indirect taxes & other costs affecting the sector

Suggested interventions

MMR should leverage the huge opportunities in global trade following the phase-out of the multi-fibre agreement (MFA)
- This could be done by an increased focus on **new product development** which would help producers to move up the value chain and capture a greater global market share. This requires a focus on:
  - Newer specialized fabric - Smart Fabrics, Specialized treatments, etc.
  - Faster turnaround times for design samples
  - Investing in design centers and sampling labs
- Another recommended step is an **increased use of Computer Aided Design (CAD)** to develop designing capability in the organizations and develop greater options
- The Government of Maharashtra should provide **incentives for setting up more textile and apparel parks and provide labor law flexibility in these parks**

- It should also encourage a **cluster development approach** mainly for small and medium enterprises (SMEs) in the sector, for the production and marketing of handloom products in order to improve overall fabric quality and production/technology standards
- GoM should also consider setting up a **technology upgradation fund at state level** on the lines of the Technology Upgradation Fund Scheme (TUFS) at the central level in order to facilitate investment in technology and overcome lack of specialized machinery and therefore speed up the production process
- In order to help firms to focus on quality and innovation and invest in new product development, the government should **assist them in setting up design centers and sampling labs.** While there is scope for private initiative in these ventures, private initiative by itself may not be forthcoming because of issues of commercial viability. Therefore GoM could consider providing assistance including taking an equity stake in some of these initiatives

3.11 Retail

Background

Mumbai has a strong economic base. The average household expenditure of more than 44% of the population is in the range of Rs. 70,000-150,000 p.a. while that for over 290,000 people is greater than Rs. 200,000 p.a. The city's market size is estimated at over Rs. 31,000 crore, making it the prime catchment for leading retailers in the country[12].

The retail market in Mumbai (similar pattern as in India) is a mix of organized, semi-organized and unorganized formats. It may be classified as:

- Traditional prime areas: Fort and Crawford markets
- Top-end retail activity centers in South Mumbai: Breach Candy, Pedar Road, Warden Road, Kemps Corner
- Suburban high-end retail activity centers: Bandra, Juhu, Andheri
- Emerging markets: Regional shopping malls

The focus of retail has traditionally been South Mumbai with Bandra being the only exception, and until recently, characterized mainly by stand-alone shops and shopping complexes. However, the opening of the "Crossroads" mall at Haji Ali in 1999 revolutionized the concept of retailing in Mumbai. Since then, a large number of malls have been announced and planned. The largest number of upcoming malls in Mumbai is concentrated in the western suburbs of Andheri, Goregaon, Malad, Kandivali and Borivali, mainly due to the growing population with sufficient disposable income and a complementary lifestyle, and availability of industrial land at affordable rates.

Overall, despite being the largest market in the country and an early adopter of the "mall culture", mall development in Mumbai has been fairly sluggish, mainly due to lack of adequate real estate, and high prices. Current developments re-emphasize the significance of location, with the focus of mall development being on western suburbs due to the potential of the catchment.

Mumbai: Poised for growth

The current mall stock in Mumbai is 3.4 million sq. ft[13]. It is estimated that by the end of 2006, Mumbai will have more than 25 fully functional malls occupying an area of around 4.8 million sq. ft14 and approximately 9.1 million sq. ft. of organized retail space by 20075. The Supreme Court's judgment to allow mill land development is expected to contribute around 8-10% of the total future supply. Encouraged by the enormity, scale, success and scope of the developments in the Parel area, some mill owners plan to redevelop their properties with a strong retail base. As mentioned, organized retail development is now shifting towards western and central suburbs due to availability of industrial land at affordable rates (see figure 3.15 for distribution of current organized retail space in Mumbai, which already is predominantly in the suburbs).

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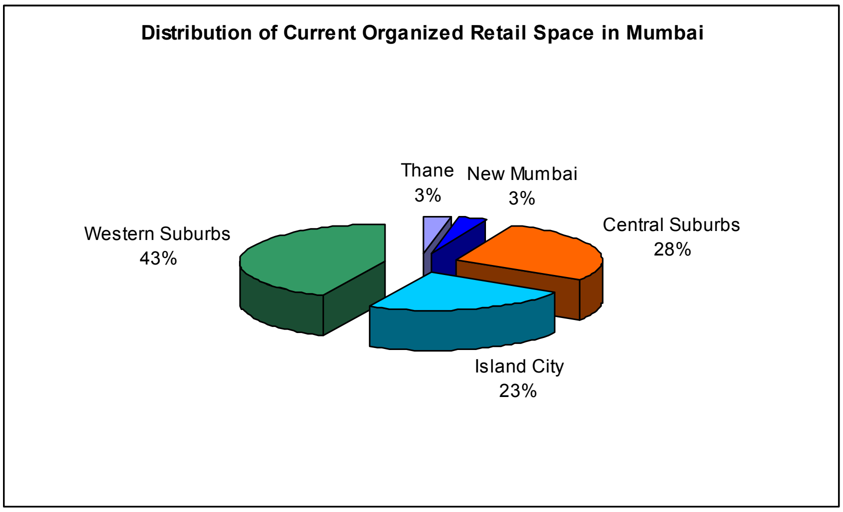
[12] "Retail Real Estate Malls in India", An Images Study

[13] "Mumbai Real Estate Review, Jones Lang LaSalle, 3rd Quarter 2005

Figure 3.15: Distribution of current organized retailing space in Mumbai



Source: "India Property Market Review", August 2005, Colliers International Asia Pacific Research Report

Areas such as Bandra-Kurla complex (BKC), Juhu, Lokhandwala, Thane and Vashi are likely to emerge as "specialty malls" which cater to particular product lines. Research indicates that introduction of modern well organized retail format helps to reduce cost by at least 10%, with promise of high quality products and services.

Figure 3.16: Employment in Retailing in China

Source: China ***Statistical Yearbook 2001***

Figure 3.16 alongside shows the immense potential for employment generation in the retail industry – the employment increased from about 29 million to over 50 million in the retailing sector in China over the period 1990-2001. In the process, the share of the labor force in retail sector increased from less than 5% to 7.5% during the corresponding period.

Therefore as mentioned earlier, we have short-listed the retail sector because of the sector's labor-absorptive nature and its ability to generate a large number of jobs both directly and through indirect multiplier linkages. According to a recent article by The Economist[15], every direct retail job creates another at the "back end" and also among suppliers in industries such as food processing. The retail industry also addresses the great concern about "jobless economic growth" that India

[14] "India Property Market Review", August 2005, Colliers International Asia Pacific Research Report
[15] "Coming to Market", A special report on Retailing in India, The Economist, April 15th 2006

has witnessed in the last few years. Experts believe that that a large proportion of the jobs created in the next one decade would be contributed (directly or indirectly) by retail industry.
Further, compared with the way the retail sector operated earlier, a modernizing retail sector creates many more high level jobs (e.g. supply chain management) that create more promising paths for career advancement. This is the context for promoting retail trade as a key sector for the MMR economy.

Critical Success Factors (CSFs) for the industry

Key factors that determine the success/growth of the retail industry in a region include:

- Macroeconomic conditions (demand): Economic growth, presence of a large and growing population base with sufficient disposable incomes and higher literacy levels/brand consciousness
- Land market: Availability of sufficient quality retail space for development and redevelopment, with adequate parking space and affordable lease rentals
- Infrastructure: Availability of good quality roads, electricity supply, transport links and other urban infrastructure especially in suburban areas
- Ease of "doing business": Simplification of central, state and local government rules and regulations, including labor laws and tax systems
- Availability of people with good communication skills and the willingness to work in the organized retailing sector
- Industry: Availability of sufficient anchor tenants to occupy the malls being planned
- Capital market: Easy availability of finance at competitive rates
- Product market: Exposure to international best practices in mall management through presence of global retailers
- Related industry: Adequate and cost effective sourcing links/availability of a developed upstream industry

Opportunities in Retail

Segments in the retail market in India

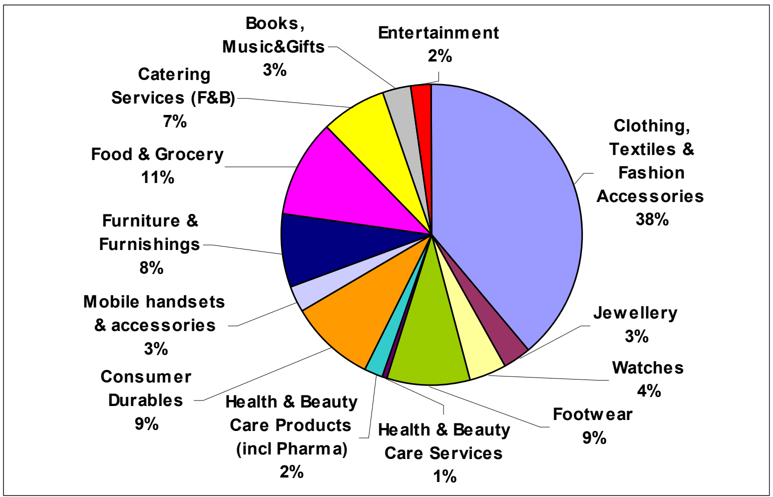
The size of the organized retailing market in 2004 was Rs. 28,000 crore, or 3% of the total retailing market. Moving forward, organized retailing is projected to grow at the rate of 25-30% per annum and is estimated to reach Rs. 100,000 crore by 2010. Its contribution to total retail sales is likely to rise to 9% by the end of the decade.

Retailing in India

Retailing in India is one of the significant contributors to the Indian economy and accounts for 35% of GDP. The size of the industry was estimated at Rs. 930,000 crore (USD 205 billion) in 2003-04 and it is expected to grow at 5% per annum. The sector is in a fragmented state with over 15 million outlets operating in the country and only 4% of them being larger than 500 sq. ft in size. This is in comparison with 0.9 million outlets in USA, catering to more than 13 times the total retail market size.
Globally, retailing is the world's largest private industry exceeding USD 7 trillion; 47 of the global Fortune 500 companies and 25 of Asia's Top 200 companies happen to be retailers.

Of the Rs. 930,000 crore retail market, **Food & Grocery retail** is the single largest block estimated to be worth Rs. 615,000 crore, but more than 99% of this market is dominated by the neighborhood Kirana stores. **Clothing, Textiles and Fashion accessories constitute the second largest block and the biggest segment for organized retailing, with about 39% share of the market** (figure 3.17).

Figure 3.17: The Organized Retailing Pie - 2004



Source: India Retail Report 2005, An Images KSA Technopak Study

Considering all fashion and lifestyle segments, such as, jewelry, watches, health & beauty care services, and mobile handsets & accessories as one common group along with clothing, textiles and fashion accessories, then Fashion as such would constitute almost 60% of the organized retailing pie. This segment is likely to be the key driver of growth of organized retail market in the next few years.

FDI in the retail sector

The Central Government is still debating on the policy decision to allow FDI in retail; but whenever it happens, it is likely to have a strong effect on organized retail development. In January 2006, the Central Government announced its decision to allow FDI of up to 51 per cent for retail trade in 'single brand' retail outlets. This move will allow multinational companies, big or small, to invest in setting up production facilities, distribution network and retail outlets of their own. Industry experts believe that this will attract premium brands like Nike, Louis Vuitton, Gucci, Reebok etc, into the country.

Foreign companies will be allowed to invest up to 51 per cent in ventures and the rest will have to come from Indian investors. However, retailing of goods of multiple brands, even if such products are produced by the same manufacturer, are not yet allowed. Similarly, the entry of resellers (mainly multibrand stores) is also barred. However, foreign firms such as Wal-Mart, the world's biggest retailer, Tesco and Carrefour, amongst others are eagerly awaiting the opening of the Indian market and they argue that the entry of foreign players would benefit the Indian economy.

Impact of FDI in Retail

According to the article by The Economist on retailing in India cited earlier, a report by Wal-Mart describes the experience of Thailand, which opened up to foreign retailers in 1997. In the short term, the report describes that "the entry of foreign players in a recessionary economy adversely affected all segments – wholesalers, manufacturers and domestic retailers." However there were also benefits. The foreign invasion led to the development of organized retailing (now 20% of the Thai market); producers had to become more efficient; foreign retailers started buying more Thai goods.

Wal-Mart argues that the same would happen in India. At present it has 120 people in Bangalore, buying about ten categories of Indian products for its shops. Were it to have outlets in India, its procurement would naturally increase. Suppliers would become familiar with its requirements, and exports would also increase. In China Wal-Mart accounts for nearly 10% of all exports to America.

Suggested interventions

Suggested actions for the state government include:

- Address **land market barriers** that create an artificial scarcity of land (repeal of ULCRA, revising FSI norms, recycling of industrial land – the Supreme Court's judgment allowing development of mill land is a positive development) in order to increase the availability and affordability of land for retail purposes especially in the central areas of Mumbai. This is perhaps the single biggest factor influencing the growth of the retail industry as is also seen in the case of Chennai, where the easy availability of commercial space at low cost and transparency in real estate transactions are often cited as the main factors that have driven the growth of the industry

- **Facilitate development of storage/logistics infrastructure (such as, integrated logistics parks, container handling facilities, warehousing)** in the region to help retail industry players in better supply chain management.
- Ensure **flexibility of labor laws** similar to those offered for ITES/BPO industry
- Allow **single-window clearance and one-time licenses** for multiples stores of retail chains so as to reduce regulatory hassles
- Focus on getting a larger share of the **clothing, textiles and fashion accessories market**, which is the largest segment of the retail market nationally. Mumbai also has inherent strengths in this area, being a traditional hub of textiles and an important center for the fashion industry in India

Annexure 1.1: Regional map for MMR

Attached

Annexure 1.2: Additional population and GDP statistics on MMR

Population statistics

The population and resident workers[16] data for Urban MMR is shown in table A.1. The main workers/total resident workers proportion for Greater Mumbai is about 36% which is however lower than that of Bhiwandi-Nizampur and Thane municipal corporation areas but higher than that for urban MMR as a whole.

Table A.1: Population and resident workers in Urban MMR - 2001

S. No.	Unit	Total Population	Main Workers	Marginal Workers	Total Workers	Main Workers/Total Population
	Municipal Corporations					
1.	Greater Mumbai	11,914,398	4,272,902	255,024	4,527,926	35.86%
2.	Thane	1,261,517	393,413	25,891	419,304	31.19%
3.	Kalyan-Dombivali	1,193,266	381,702	21,735	403,437	31.99%
4.	Navi Mumbai	703,947	238,259	17,196	255,455	33.85%
5.	Mira Bhayander	520,301	185,979	7,101	193,080	35.74%
6.	Bhiwandi-Nizampur	598,703	243,073	6,990	250,063	40.60%
7.	Ulhasnagar	472,943	145,721	9,447	155,168	30.81%
	Sub-Total (A)	16,665,075	5,861,049	343,384	6,204,433	35.17%
	Municipal Councils					
8.	Thane District (Sub-Total (B))	771,367	249,360	18,227	267,587	32.33%
9.	Raigad District (Sub-Total (C))	266,319	82,308	8,613	90,921	30.91%
	Census Towns					
10.	Thane District (Sub-Total (D))	86,541	32,222	2,911	35,133	37.23%
11.	Raigad District (Sub-Total (E))	56,633	16,072	2,028	18,100	28.38%
	Urban MMR (A+B+C+D+E)	**17,845,935**	**6,241,011**	**375,163**	**6,616,174**	**34.97%**

Source: Population and Employment Profile of Mumbai Metropolitan Region, MMRDA

[16] Resident worker in MMR means a person who resides in MMR and is reported working

GDP statistics

Table A.2 presents the break-up of MMR's GDP for Greater Mumbai, Thane and Raigad, for selected time periods. Figures in brackets are the district-wise percentage break-ups of MMR's GDP.

Table A.2: District-wise break-up of MMR's GDP (Rs. Crore)

GDP	1993-94	1998-99	2003-04
Greater Mumbai	28752.33 **(65.14%)**	41387.50 **(65.54%)**	46025.83 **(67.38%)**
Thane	10944.53 **(24.80%)**	16314.21 **(25.84%)**	19662.29 **(25.91%)**
Raigad	4441.86 **(10.06%)**	5442.34 **(8.62%)**	5092.83 **(6.71%)**
TOTAL GDP (MMR)	**44138.70**	**63144.05**	**75881.91**

Source: Directorate of Economics & Statistics, Govt. of Maharashtra

Annexure 1.3: Industry wise Employment Statistics of MMR

In this table, the industries have been clubbed in three categories of sectors, namely,

- Export-Oriented Key Growth Sectors
- Traditional Sectors
- Local Service Oriented Sectors

The specific industries under each broad sector are based on NIC-87, as this is the classification used for this employment census - 1998. Tables A.3 and A.4 provide the number of employees in each of the industry in Greater Mumbai, Raigad, Thane and MMR.

Table A.3: Industry-wise employment in Greater Mumbai, Thane and Raigad

Sector	Total Labor in Greater Mumbai	Total Labor in Raigad	Total Labor in Thane	Total for MMR
Data in nos.				
Export-oriented key growth industries				
IT/ITES	6372	68	673	7113
Finance	179312	4053	14763	198128
Business services	150496	1969	7323	159788
Media	10767	564	1754	13085
Tourism	188406	11388	39571	239365
Biotech	2726	119	612	3457
Health	108808	4912	25848	139568
Logistics	151638	2984	14000	168622
Traditional Industries				
Primary sector	8677	14065	28324	51066
Manufacturing sector	440529	69993	413014	923536
Local service oriented Industries				
Utilities & postal	30037	2287	3600	35924
Construction & real estate	39420	5588	17237	62245
Retail	598169	41923	186247	826339
Public administration	476082	35417	94576	606075
Other services	94346	12086	32329	138761
Private household production	140090	9771	50959	200820
Total Employed	2625875	217187	930830	3773892

The following table provides the employment share (in %age) of each industry in Greater Mumbai, Raigad, Thane and MMR.

Table A.4: Industry-wise employment share for Greater Mumbai, Thane and Raigad

Sector	Total Labor in Greater Mumbai	Total Labor in Raigad	Total Labor in Thane	Total for MMR
Data in %				
Export-oriented key growth Industries				
IT/ITES	0.24%	0.03%	0.07%	0.19%
Finance	6.83%	1.87%	1.59%	5.25%
Business services	5.73%	0.91%	0.79%	4.23%
Media	0.41%	0.26%	0.19%	0.35%
Tourism	7.17%	5.24%	4.25%	6.34%
Biotech	0.10%	0.05%	0.07%	0.09%
Health	4.14%	2.26%	2.78%	3.70%
Logistics	5.77%	1.37%	1.50%	4.47%
Traditional Industries				
Primary sector	0.33%	6.48%	3.04%	1.35%
Manufacturing sector	16.78%	32.23%	44.37%	24.47%
Local service oriented Industries				
Utilities & postal	1.14%	1.05%	0.39%	0.95%
Construction & real estate	1.50%	2.57%	1.85%	1.65%
Retail	22.78%	19.30%	20.01%	21.90%
Public administration	18.13%	16.31%	10.16%	16.06%
Other services	3.59%	5.56%	3.47%	3.68%
Private household production	5.33%	4.50%	5.47%	5.32%
Total Employed	100.00%	100.00%	100.00%	100.00%

Annexure 1.4: Location Quotient (LQ) Analysis of Secondary and Tertiary sectors

Location quotients are used to determine the relative share of each industry in the local economy compared to a reference economy. We have developed a framework for the LQ-Growth matrix (figure A.1), to identify growth sectors, where sectors have been mapped with respect to both LQ (indicating existing concentration) and past growth rates (CAGR of the sector over 1993-94 to 2003-04).

The Location Quotient (LQ) technique compares the local economy to a reference economy, in the process attempting to identify specializations in the local economy. It is a ratio between the local economy and the economy of some reference unit. The LQ of a particular industry would be defined according to the following formula:

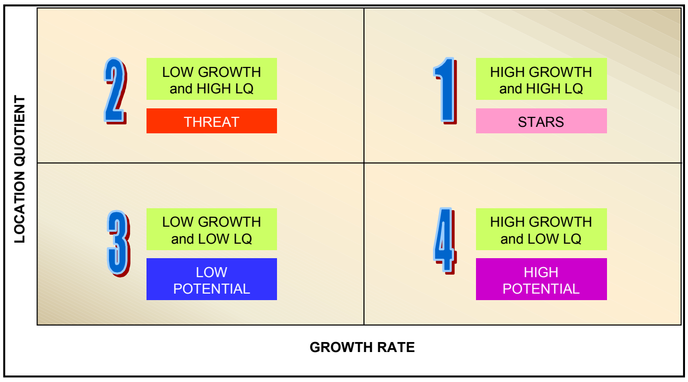
$$LQ_i = \frac{R_i/R}{E_i/E}$$

Where:
LQi is the location quotient for industry i;
Ri is production or employment in industry i in the region;
R is production or employment in all industries in the region;
Ei is national production or employment in industry i;
R is national production or employment in all industries.

Location quotients may be interpreted as follows:

- If LQ>1, this indicates a relative concentration of the activity in the region, compared to the reference economy;
- If LQ = 1, the region has a share of activity in accordance with the reference region;
- If LQ<1, the region has less of a share of the activity than is more generally, or nationally, found.

Figure A.1: Framework for LQ-Growth Matrix



In this framework,

- sectors in quadrant 1 (“stars”) are key sectors with an existing concentration which are also doing well;
- sectors in quadrant 2 (“threat” sectors) have existing importance to the region but are losing gradually due to declining growth rate;
- sectors in quadrant 3 (“low potential” sectors) have low LQ and low growth rates, and therefore have low future potential;
- sectors in quadrant 4 (“high potential”) are not yet important but are growing, indicating a “new” industry or one with high future potential17.

Secondary Sector in MMR

Within the secondary sector in MMR (refer figure A.2), manufacturing accounts for about 77% of output in year 2003-04. Construction and electricity, gas & water supply contribute to 13% and 10% respectively of secondary sector output. The share of manufacturing to total secondary sector output has declined from about 85% in 1993-94 to 77% in 2003-04.

[17] We have used LQ=1as the cut off point on the Y axis and growth rate=5.5% (close to the MMR GDP growth rate over 1993-94 to 2003-04) as the cut off point on the X axis

Results of LQ Analysis

The location quotients of various sub-sectors within the secondary sector (table A.5) indicate the following:

- LQ>1 at the aggregate secondary sector level as well as for individual sectors except for construction.
- However, LQs have been declining in most of the cases except for electricity, gas and water and a marginal increase in LQ for construction.

Figure A.2: Break-up of secondary sector in MMR's GDP (1993-94 to 2003-04)

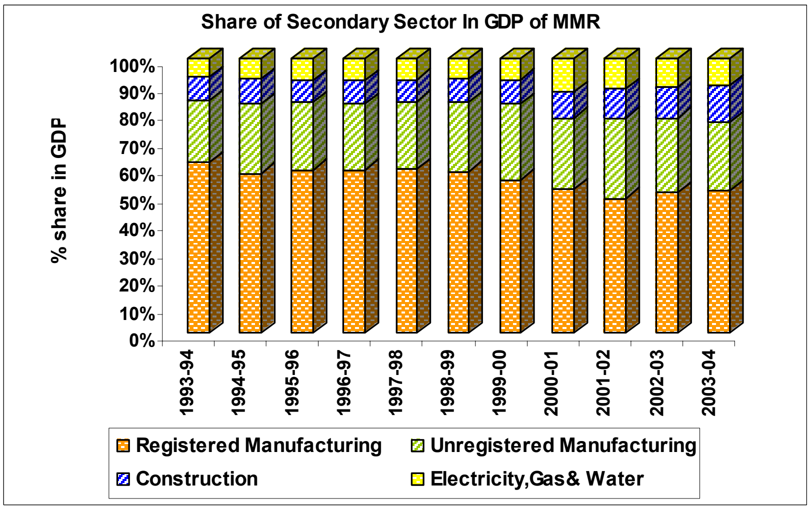
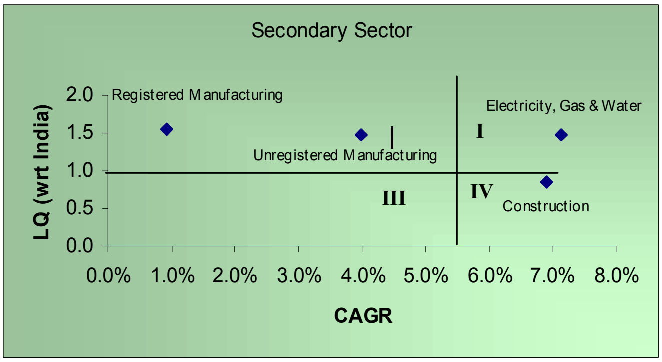


Table A.5: Location Quotients of Secondary Sector for MMR

Sector	**LQ with respect to India**	
	1993-94	**2003-04**
Secondary Sector	1.87	1.38
Registered Manufacturing	2.63	1.56
Unregistered Manufacturing	1.77	1.48
Construction	0.75	0.84
Electricity, Gas and Water	1.20	1.47

Source: Department of Economics and Statistics, Government of Maharashtra

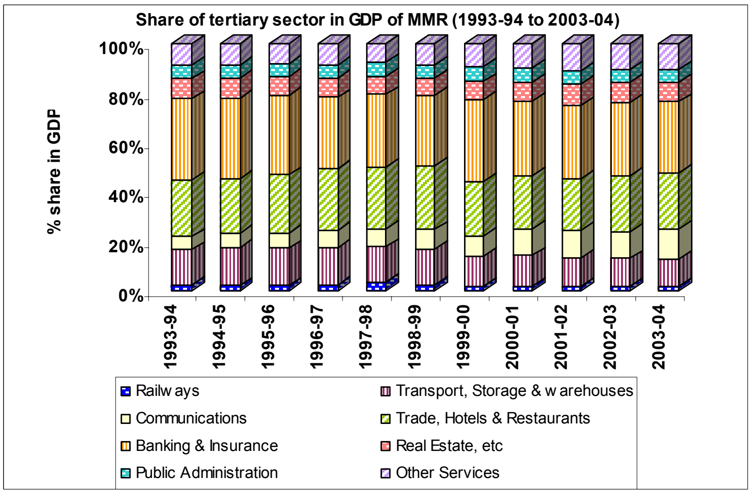
Figure A.3: Growth-LQ matrix for the secondary sector



In the secondary sector (figure A.3), the electricity, gas and water sub-sector has a high LQ as well as growth rate, indicating its importance for MMR's economic growth. Manufacturing (both registered and unregistered) is clearly a threat sector with a slowing growth rate, which needs interventions from the state government (e.g. creation of industrial infrastructure and attracting fresh investments in the manufacturing segment). Construction is another segment where the state needs to focus and increase MMR's share, given the high growth potential.

Tertiary Sector in MMR

Figure A.4: Break-up of tertiary sector in MMR's GDP (2003-04)



In the year 2003-04 (refer figure A.4), banking & insurance forms the single largest share of the tertiary sector contributing to about 29% of tertiary sector output. This is followed by trade, hotels & restaurants, which contributes about 23% to tertiary sector output.

During the period 1993-94 to 2003-04, the communications sub-sector led the growth in tertiary sector output thereby increasing its share from 5% to 12% at a CAGR of 17%. On the other hand, the shares of banking & insurance (sub-sector) and transport, storage & warehouses (sub-sector) declined from about 33% and 14% respectively in 1993-94 to their shares of 29% and 11% respectively in 2003-04.

Results of LQ Analysis

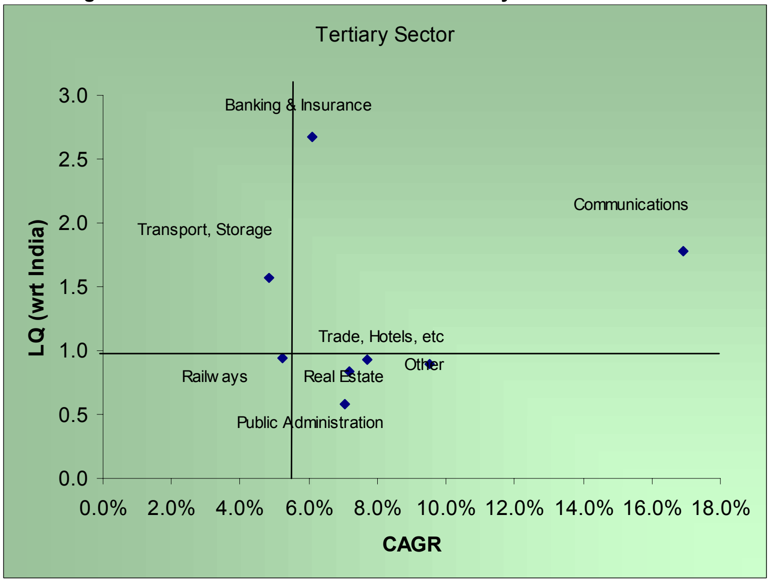
Table A.6: Location Quotients for Tertiary sector for MMR

Sector	LQ with respect to India	
	1993-94	**2003-04**
Tertiary Sector	1.23	1.24
Railways	0.87	0.94
Transportation & Storage	1.85	1.58
Communications	2.27	1.77
Trade, Hotels and Restaurants	0.94	0.94
Banking & Insurance	3.26	2.67
Real Estate etc.	0.70	0.84
Public Administration	0.50	0.58
Others	0.72	0.89

The location quotients of various sub-sectors within tertiary sector given in table A.6, indicate the following:

- LQ>1 for the tertiary sector at the aggregate level as well as for transportation & storage; communications; and banking & insurance.
- LQ for banking & insurance is the highest amongst all sectors but it has shown a declining trend.

Figure A.5: Growth-LQ matrix for the tertiary sector



For the tertiary sector (figure A.5), many of the sectors are clustered together at boundaries with LQ close to 1 and growth rates higher than the regional average.

- However, banking & insurance and communications are clearly the star sectors. However, the growth rate of the communications sub-sector is the highest, while banking & insurance has a slowing growth rate which puts it at the risk of becoming a 'threat' sector – this also highlights that the state government needs to take steps in order to retain MMR's pre-eminent position in this area.
- Trade, hotels & restaurants lies somewhat on the margin (its LQ with respect to India is slightly less than 1). However, the sector has been growing at a fast rate and therefore it does seem to have future potential as one of the prominent contributors to MMR's economy.

Real estate similarly appears to be a high potential sub-sector, while transport & storage is a threat sector and both these sub-sectors need interventions from the government for their sustainable development.

Annexure 1.5: Analysis of select ASI data for MMR – District Shares

NIC Code	Sector	Mumbai	Thane	Raigad
17 & 18	Manufacture of Textiles and Manufacture of Wearing Apparel, Dressing and Dyeing of Fur	44.34%	50.25%	5.42%
23	Manufacture of coke, refined petroleum products and nuclear fuel	20.37%	0.82%	78.81%
24	Manufacture of chemicals and chemical products	19.95%	37.19%	42.86%
27 & 28	Manufacture of basic metals and Manufacture of fabricated metal products, except machinery & equipment	9.66%	26.87%	63.47%
29 & 31	Manufacture of machinery and equipment and Manufacture of electrical machinery & apparatus	65.4%	23.78%	10.82%
36	Manufacture of furniture	97.81%	1.96%	0.24%

Annexure A: List of References

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