Strategic Assets and Weaknesses of a New Infotech Growth Pole in India: Pune (Maharashtra)

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Abstract

In 1991, the Central Government started to establish the scheme "Software Technology Park of India" in Pune to support the economic growth in the information technology sector. In due course, the private sector followed, building others IT parks: thus contributing to the rapid growth of the city. Indeed, these parks covered multi-spatial realities, ranging from a simple tower to a township. They played an important role in the economic development of Pune by promoting the growth of the IT cluster. Consequently, the importance of Pune in the regional and national scheme is rising. At the same time, this rapid growth involves problems, which, in the long term, can harm the dynamics of Pune. The actors public-private are required to set up palliative strategies, in order to preserve the potential of the economic growth of the city. This will be the sole answer in order to fructify the efforts made for almost two decades.

1. Introduction

The promotion of Information and Communication Technologies (ICT) had been one of the ways chosen by India since the economic liberalization in 1991 to attract foreign investments and enterprises, in order to develop its export oriented economy. India is specialised in the final services provided to companies abroad: data processing, transmission of information, telecommunications, edition of software, installation, maintenance of the computing systems and the telecom networks. All these kinds of services are diffused by cable and hot-line services (Fache, 2002; Saxenian, 1994). The infotech-services are classified according to their added value (Testard, 2006). **"ITES"** (IT Enabled Services) are back-office operations, which do not demand a very specialised knowledge (call-centres, Business Process Outsourcing). The

"software" services contain Knowledge Process Outsourcing (Consulting and Engineering) and the Research and Development. India accommodated these activities in successive waves in a movement of expanding productive range. Nowadays, more than one quarter of the worldwide market of information technologies is acquired by India, with a growth rate of 30 percent per annum for several years, thanks to leading software companies like Infosys, Wipro, and Tata Consultancy Services (TCS). Ninety percent of the turnover of these companies is achieved through export, in particular towards the United States and Great Britain (Arora and Gambardella, 2005). How was this economic strategy politically and spatially translated from the national to the urban scale? IT parks, public or private, are the evident manifestation of this

"**cluster policy**". Large multi-realities cover Pune, and the whole city is undergoing rapid changes due to the IT. That gives a new deal to the local scale, and the problems going with it. What are the prospects for the future, if Pune wants to play a major role in the regional and national development?

2. From the Public Initiative to the Infatuation of the Private Actors

2.1. Build India as the giant of the software export: one public policy, devised hierarchy

With the "Software Technology Park of India" (STPI), a scheme established in 1991, the Indian Government softened the investment of conditions administrative authorizations, the so-called "express train"; non-taxation of the profits on the exported services; exemption of the restrictions on customs duties and monetary reserves; staff management simplified and absence of legal duration of working hours; direct foreign investments (IDE) 100% authorized and with automatic approval of procedure. Lastly, it envisaged a reinforcement of the
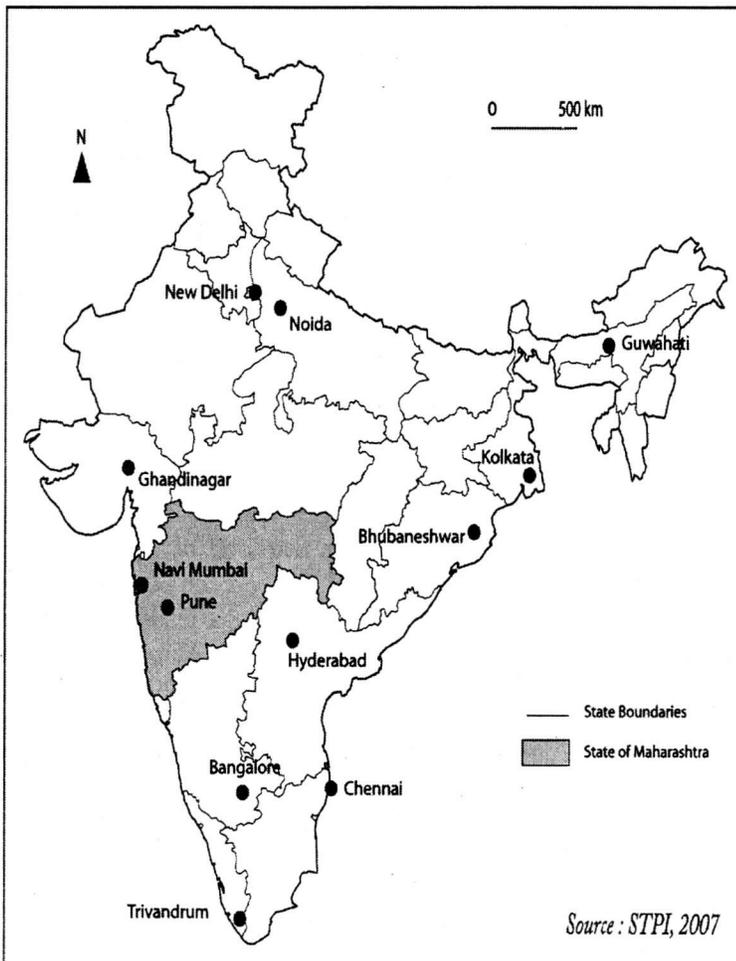

Fig. 1: Major cities with an SPTI in India

legislation on intellectual property safety. The role of the national agency NASSCOM is to promote the IT sector. It is an interface between the national scale and the world, India and the foreign customer. For the largest cities (fig. 1), the InfoTech (IT) represents the main issue. Information Technologies associates data processing and telecommunications for the production of equipment and services. Success stories of Bangalore and Hyderabad made of the country a main node in the global nebula of IT (Basant, 2006). In India of the data-processing boom, it became common for a town to affirm itself as a paramount place for services related to software and thus to promote the IT parks.

The state of Maharashtra, as many other Indian states, indorses the development of the IT sector by special incentives (tax exemption, etc.) to further promote the IT parks. Indeed, Maharashtra contributes 30 % of Indian software export, and the most important concentration of IT parks of the country is found on both of the extremities of the "**knowledge corridor**", the high-way link-up between the cities of Mumbai, the economic capital of India, and Pune, the learning and cultural capital. On the regional scale, the public agency, the Maharashtra Industrial Development Corporation (MIDC), creates information technology infrastructures and offers facilities to the companies which wish to settle there. In fact, according to an interview with the responsible for the public relations of Wipro Limited Company (Pune), "the *differences between the interior and the outside of the parks are especially the viability of the infrastructures and the price of the grounds to be built. The facilities offered by the Government or the private promoters and the establishment of foreign companies are promising signs for the establishment of other companies, and the durability of the growth of the IT sector of Pune*".

Next to the metropolitan cities, like Mumbai and Delhi, as in the case of Pune, there are other cities trying to emerge as new leaders in the IT sector. These cities try to take advantage of the overloading of Bangalore, and, in turn, strive to attract software investments. In 1991, the Central Government decided to set up a STPI in Pune (Vaidyanathan, 2007). This decision reinforced the previous implementation of the units of Indian software enterprises, Patni and Infosys and the setting-up of the C-DAC, Centre for the Development in Advanced Computing, on the campus of Pune University. According to NASSCOM[1], in 2006 Pune became one of the first destinations of the IT industries in South Asia. In Pune, various associations are involved around the exporters of data processing, but it is mainly the Chamber of Commerce which is at the origin of the aggressive marketing by inviting and encouraging the companies and the engineers to settle permanently in the town.

2.2. Pune IT parks to the test of a French-Indian classification

Located beyond the chain of Western Ghats, Pune offered a more breathable climate than Mumbai, one hundred and sixty kilometres in the Northwest. The British made Pune an important military base, and a vacation town allowing the Governor to get some respite

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1. National Association of Software and Services COMpanies.

from the heat and the monsoon rains of Bombay (Diddee, Gupta, 2000). **IT Parks** are space markers of the new economy, with the modern architecture and design they reveal a complex reality, both in their form and in their localisation. Inside the metropolitan area transformation, a process of concentration, takes shape. "**Buildings**" known as "**smart**", according to a French typology (Eveno, Puel, 2003), emerge in the city-centre, while technological parks, congregation places with high added value, are built in the periphery of the cities. In this second category, we identify two types of IT parks, according to the Indian law. One are the "state" or "**Public IT Parks**"; and the other, we call it, "**Township**", because they have been settled (or institutionally transformed) under the Township Act of Maharashtra, 2006. Peripheral spaces are sought after by the companies for their connectivity with other networks, but still the central spaces are not forsaken (fig. 2).

Generally, a strong correlation exists between the localisation of IT companies in the agglomeration of Pune and the presence
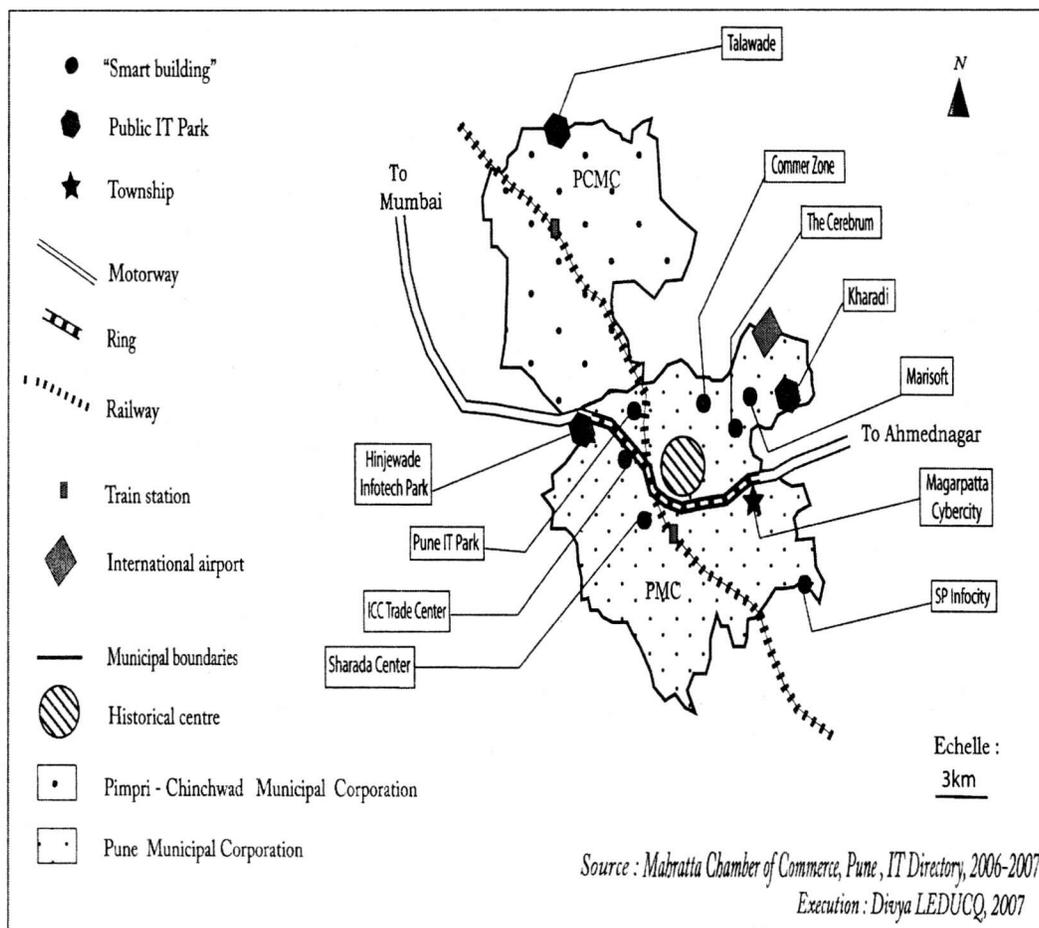

Fig. 2: Typology and localisation of the IT parks in Pune

of parks (fig. 3). The wards of Kasba Peth, of Dhole Patil Road as well as the north of Tilak Road, which constitute the historical downtown area of Pune with narrow, sinuous and overloaded streets, are avoided. The downtown area is forsaken by IT activities and by the promoters of the parks because of the traffic congestion and the high level of pollution. The quarters of Pune reserved as the military areas[2], accommodate little or no computing activity. The seven "**smart buildings**" appeared as office of towers, with one or more than one company on each floor. All are located in the new downtown areas, except the SP Infocity. These buildings are private, except for one, the International Convention Center (ICC), attached physically and financially to the Chamber of Commerce of Pune. Two of them, Pune IT Park and ICC, are located in close proximity to the University of Pune. The "**intelligent**" buildings are offices offered for sale or are on lease. The IT parks are often located near the most pleasant areas to live in *wards*, such as Aundh (University) or Hadaspar which adopted since the 1980's western comfort standards: specialised trade, private shopping malls, supermarkets, doctor's offices, private clinics and hospital. These characteristics have enhanced the attractivity of the parks.

The sites of the MIDC, Hinjewade and Kharadi, as well as the township Magarpatta City are peripheral parks which fill up quite rapidly. The MIDC developed three public information technology infrastructures, in the first and in the second urban fringe. These office complexes have a great influence on the town and offer a good level of amenities: water, electricity and transport infrastructures. The parks of the MIDC accommodate companies, which build their own premises. On the local scale (PMC), the implementation of Hinjewade is explained by the proximity to the University and principal colleges (ward of Aundh). It is also in this ward that the Mumbai-Pune highway arrives, one of the largest regional ways of communication of India. These assets generated the relocation of the Chamber of Commerce and Industry of Pune which built the International Convention Center next to its offices, functioning at the same time as an IT park, a congress centre and a shopping mall. The result of the creation of a positive environment for the establishment of the data-processing units has consequently lead to the installation of new companies and the development of the IT parks. The public park of the MIDC Rajiv Gandhi Infotech Park (Hinjewade) obtained a second phase and accommodated thirteen new companies. The localisation of Kharadi, another public park, is related to the presence of the international airport, Lohegaon, which opened recently direct flights to Dubai, a new centre of data processing. Surprisingly, whereas the Northeast of Pune counts four IT Parks, the number of data-processing companies is very weak. However, the peripheral character of the localisation of these technological parks is relative. Talawade IT Park is located at the North of Pimpri-Chinchwad Municipal Corporation (PCMC), beyond the automobile complex established during the 1960's by the MIDC.

The third type of IT Park is the township of Magarpatta City, which constitutes a new city on the model of "closed communities".

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2.   Inherited from the British period and belonging today to the Indian army.

In Magarpatta City, there are only rental offices. The foreign companies or the small Indian start-up enterprises often prefer to lease their offices. So if they decide to change their establishment sites, they are able to move easily with lower costs. *A contrario*, the large Indian companies prefer to build their own buildings, to grow there and to profit of a greater credibility in their home country. The strategy of localisation is a function of the size and the financial weight of the company. The construction of a special economic zone dedicated to IT industries, Eon Free Zone, is envisaged between the parks of Kharadi and Magarpatta City. Around the city park of Koregaon (district of Hadaspar), one finds many glass buildings leased to European and American companies. This ward, where Magarpatta City is also located, is crossed by the Ahmednagar highway.

2.3. Magarpatta city - a fulfilled "science park" in Pune?

Why (2001) announces the following new paradigm about "science parks". The old model of "science park" located on a green ground, characterized by weak density and an autonomous development, gives rise to a new generation of "science parks", combining new priorities of density on the ground, accessibility, diversity and flexibility. Why ensures that the scientific and technological parks will have to adapt to the new ideal of life of the working communities. *Science parks* become "science communities" and are the answer to the combination of the commercial, financial, educational, social and environmental needs. Synergy between the high-tech companies, schools and universities, and the foreign community has

a driving role to play in durably supporting the continuous training of the staff and in promoting the efficiency of the company.

MIDC IT parks are not yet proper "science parks". These work places are close to the model of the scientific and technological parks: they concentrate companies of high technologies and schools of engineers. Concerning the cross-fertilization between the University of Pune and the companies, there is evidence of co-operation between these institutions: joint research projects, intervention of IT professionals during the lectures. However, regarding innovation, particular relational networks between the University and the companies do not exist, although some schools of data-processing engineering are present in the IT parks. Indeed, Symbiosis and an American technological academic institute are present in Hinjewade and Kharadi InfoTech Park respectively. It seems that the professional colleges and the University of Pune are useful only because they provide much of the qualified and powerful work force to the IT sector. The public parks are dedicated to become gradually places of life: one finds there close by banks and residences, but much of it remains to be built. However, the three MIDC parks are not at the same developmental stage. Hinjewade Infotech Park gets built up much faster than Kharadi and Talawade, and shows a more complete offer: trade, restaurants, hotels, and establishments of higher education. Once built, the residences of these public parks will be reserved to the high-paid employees and thus will be socially selective.

On the other hand, Magarpatta City can be regarded as a new city within the metropolis. Started in 1992, this town
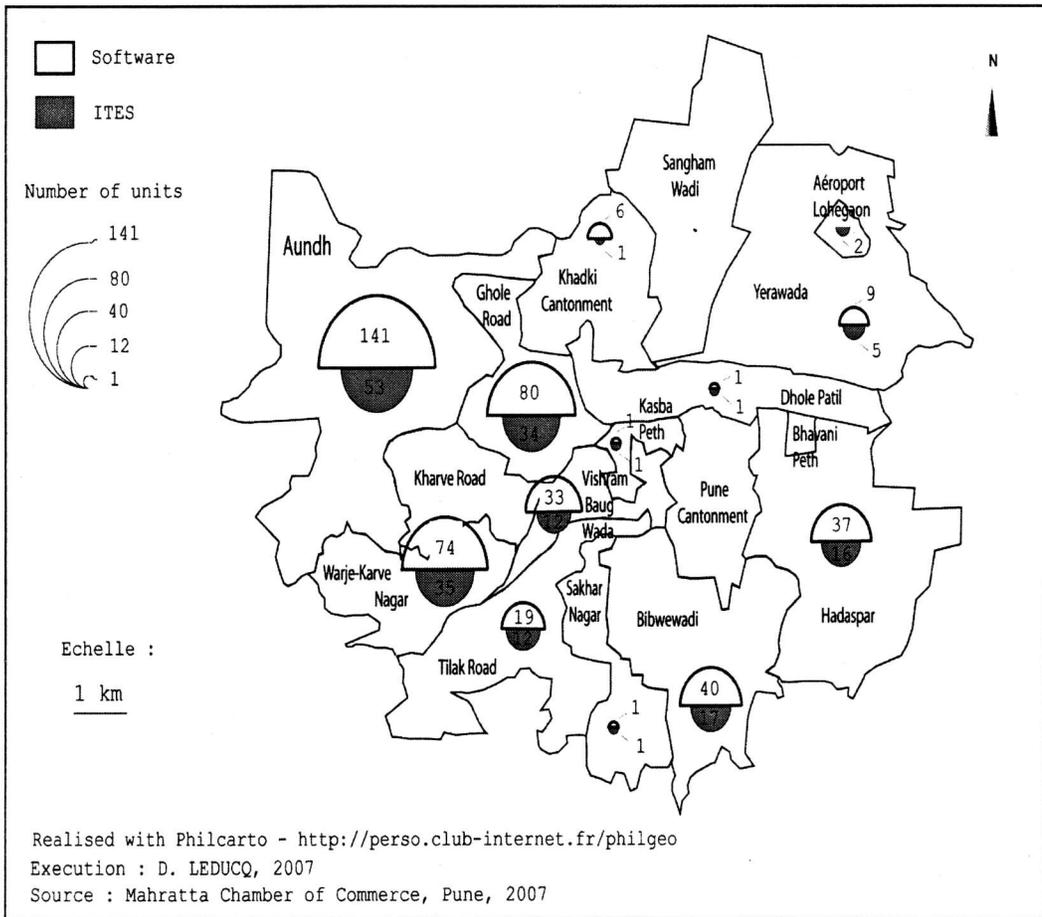
Fig. 3: Map of IT activities related to the wards of PMC

planning project is unique in its kind within Pune. It gives a framework of pleasant and respectful life of the environment to the scientific community. Magarpatta City was developed by a farmer's cooperative, Magarpatta Township Development and Construction Company Limited[3]. They saw the opportunity of transforming their arable lands into grounds for luxurious urban residences. The buildings are built with respect to the principles of sustainable development, using recycled waste coming from heavy industries. The president of the co-operative, Satish Magar, wanted to place the information technology infrastructure, the Cybercity, in the centre of the urban project. The rents paid to the cooperative by the data-processing companies constitute the necessary income for the maintenance and the benefit of the township. Of all the IT parks of Pune, this one is the most complete. It constitutes a

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3.   "The Rs 4,000-crore township that farmers built", [Webite of Magarpatta City, http://www.rediff.com/money/2006/mar/22sld1.htm, consulted on January 20th, 2008]

real "science park" in Pune: large glass buildings are rented by the IT companies, there are a gigantic shopping mall, schools, a hospital, places of leisure activity; and more than 6500 residences are occupied yet. All the movements of the week can be achieved within walkable distance. Even if institutions of higher education are not present yet in Magarpatta City, engineers from around the world as well as companies of reputation such as John Deere (United States) or Patni (India) are there. This park is going to be a "scientific community" more and more connected with the world, but, at the same, time it seems much closed to its immediate environment.

3. Pune: Prospects to become a National Growth Pole?

3.1. Need for reducing the "archipelago economies" to ensure a good business climate

A technopolitan area causes the agglomeration of economic activities, creates a basin of employment and splits into two parts the local labour market: "highly specialised personnel" on the one hand, and "unskilled workmen" on the other hand. The IT parks and the computing activity generated a strong demographic growth, with a corollary: the increase in the construction of new housings. The Pune Metropolitan Area[4] increased from 145 to 375 km² between 1960 and 2000. Restricted by the surrounding hills, the town extends like crow's feet along the major transportation axes. During the last years, twenty-five villages (*gaons*) were added to the perimeter of the urban development plan of PMC. While the total population of Maharashtra showed between 1991 and 2001 a growth of 22%, the population of themetropolitan area of Pune increased by 65%[5]. At present, approximately 40% of the inhabitants live in shantytowns, and Pune ranked third in the country with respect to its slums areas.

The growth of the metropolitan area of Pune started during the decade 1971-1981, when the first heavy industries (car complex of Bhosari) settled in the north of PCMC. After 1991, the population grew exponentially with the arrival of the ICT in PMC. After 2001, we observe a relative stabilization in the growth curve compared to the announced tendency. The software development attracts two types of people, which migrate from the rural areas of Maharashtra and others states towards Pune. On the one hand, a student's population from different social background goes to Pune to obtain a Bachelor degree in Computer Science, offered by the University or by one of the many colleges. A large proportion of the graduates in data processing remain in the city to find employment in the IT parks. On the other hand, an unskilled work force, often composed of deprived classes, migrates from the countryside towards the cities in order to find work on the sites of the roadway and the building construction.

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4. Made up of the PMC: Pune Municipal Corporation; and PCMC: Pimpri-Chinchwad Municipal Corporation, and of some military areas.

5. According to the national census of 2001, the population of the urban centre of Pune was around 3.7 millions inhabitants and could reach, according to the UNDP (2005), 6 millions in 2021.

With the arrival of this labour force the shantytowns explode, because the traditional housing of the city (houses with not more than three floors), which used to shelter the low-middle classes, cannot grow further and is often in a state of dilapidation. The slums, generally located around the centre of Pune, don't benefit much from the urban infrastructure (running water, electricity, sewage management), and they continue to be solidified, as at the riverbank of the Mutha. The edge wards attract the qualified labour force. These zones characterised by a weak density offer both standing residences and quality urban infrastructures (water, electricity, sewage, telephone and internet). We put forth the assumption of a socio-spatial segregation, based on the model of the "archipelago economics theory" (Veltz, 1996), due to the presence of the information technology infrastructures have concentrated in certain points of the city (Graham and Marvin, 2001; Kennedy and Ramachandraiah, 2006). The important land speculations stress the intra-urban differences of Pune. At the same time, the model of the "technopolis" (Benko and Lipietz, 1992) or of "clusters" (Porter, 2003) indicate that high-tech activities need to take place in a pleasant environment, where sociability is freed from the traditional barriers and where the inequalities are not flagrant. We can raise a question: how will it be possible, with the two new Special Economic Zones coming up in Pune, to ensure a more homogeneous space with a less pronounced gap between the areas?

3.2. Need for improving the traffic conditions to maintain the internal dynamic

The traffic congestion and the pollution in the Pune agglomeration increase the negative externalities of the downtown area. The air is un-breathable during times of the day and obliges people wearing a mask. The defective infrastructures, the insufficiency of regulations and the lack of division of traffic flows generate an urban congestion at the rush hours and increase the stress and the risk of accidents. Ultimately, the over cost of localisation in an over-populated downtown area can be accounted in time and money terms and deducted from the profits of the companies. This impact in economic term explains why the IT parks don't want to reproduce the errors of the city core if they want to be and stay as scientific microcosms far from sound and air pollution.

In general, an employee carries out his personal work on the motorbike, but also more and more uses a car. To avoid all new difficulties of the trips, new double lane roads connect the parks to the city. Flyovers are built to facilitate the passages between the centre and the urban fringes. However, the rhythm of construction of the transport infrastructures and housing does not manage to follow the economic and demographic growth. So the employees with modest incomes still often live in the traditional districts of the downtown area and even in shantytowns. The socio-spatial segregation and the absence of a real town planning development plan maintain traffic jams in the Pune agglomeration. IT companies are compelled to set up palliative solutions: buses to limit the delays of their employees. Several companies (Wipro, Infosys and TCS) plan to set up a common

line of bus services for the employees of the Hinjewade Infotech Park connecting the downtown area and this IT park. Another opportunity to resolve the problem is initiated by the "IT sub-committee", under the management of the Mahratta Chamber of Commerce, which is a public-private organisation for creating all the facilities for the IT sector and thus transportation is one of their matters of concern. Indeed, even though it is mainly the responsibility of the municipality (PMC): the master plan doesn't emphazise enough the role of transportation as a key factor in sustaining the competitiveness of the city.

3.4. Need for promoting the "knowledge corridor" for a better national position

Exploiting the new highway, which places Pune at less than three hours from Mumbai, and promoting new IT sites on it, is the solution to extend the relationship between the two urban areas and to reinforce the national position of Pune. This has been the subject of an intense economic promotion by both, the public authorities of Maharashtra and the Central Government of New Delhi (Leclerc, 2001). This corridor would renew a historical complementarity between the two cities. Today, the synergy between the two cities is articulated around

technologies, in particular under the MIDC drive which launched a policy of infrastructure development and planning of the Mumbai-Pune corridor.

The first axis of this policy is the reinforcement and the diversification of the existing parks. Pune, which for fifteen years had put emphasis on computer engineering, is now one of the four Indian big cities to bet on the development of **biotechnologies**. The Rajiv Gandhi Infotech Park (Hinjewade) carries out the ambition to compete with Hyderabad, Lucknow and Chennai. Thus, this MIDC Park, which accommodated software companies in the first two phases, intends now, in the third phase of the project, to receive companies related to the biology and agronomy sector. Hinjewade located at one of the ends of the Mumbai-Pune highway, filled up quickly and takes part in the optimization of this corridor. The promotion can be also read through the MIDC policy to place public infrastructures there, such as congress centres, leisure places, office buildings and high-speed internet lines. There again, the private sector is following the public intervention, by constructing some totally new leisure and living areas, as "Lavasa", along the corridor. Tele-working, a new phenomenon can be developed: the inhabitants of small
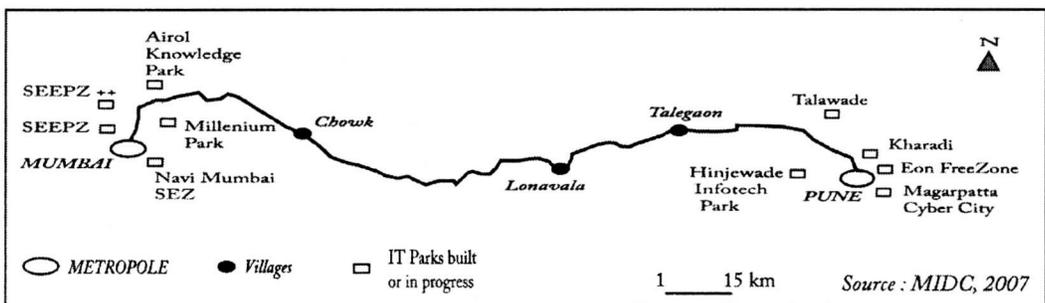

Fig. 4: Development of a dynamic corridor between Mumbai and Pune

towns along the corridor which work in the IT sector do not have to commute every day to Pune and in due course may prefer to work at home. The MIDC policy coupled with the inflation in the office and the housing prices in Pune encourages young businessmen or young couples to avoid the agglomeration, which profits some cities along the corridor, like the town of Lonavala (fig. 4). So the emergence of a dynamic corridor, between Pune and Mumbai, underlines a little furthermore the importance that the "Queen of Deccan" is taking in the Indian IT race.

4. Conclusion

Pune's public and private actors accommodated many parks for Infotech activities (smart building, MIDC public parks, township). The strategy has been successful. All the IT parks do form together an embryo of an "economic cluster" at the urban scale (Hamdouch, 2007). However, to become the next "San Jose" of the Indian Silicon Valley, as the private sector affirms it, Pune needs to find some solutions to the negative reverberations of a rapid and badly controlled growth: boom of the prices, urban congestion and longer travel time, noise and air pollution. There is a pressing demand for a sustainable development plan for the whole city. Otherwise, if there are the same negative externalities than in Bangalore (Didelon, 2003) which affects that agglomeration, it could be possible that after some times the IT development of Pune, and moreover of India, will be compromised. In fact, smaller Indian cities and many countries in the world started to establish science and technology parks with IT core in order to promote the growth

and the development of their regions (Bel Hadj Ammar and Amami 2005).

Acknowledgement

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