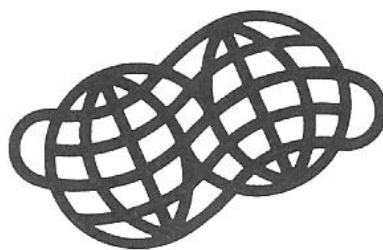


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## Industrial Areas in Budapest Compared with Tokyo at the End of the 20<sup>th</sup> Century

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**Abstract:** By the beginning of the twentieth century, Budapest had become a modern city with large and significant industrial areas. After 1989, when radical political change opened the way for economic and social reforms, these old industrial districts have become the most important scenes of changes. Based on the surveys and interviews carried out in Budapest and Tokyo, the main purposes of this study are to describe the most important structural and functional changes in the industrial areas of Budapest during the last decade and to compare them with the changes in the industrial areas of inner Tokyo. The emphasis is primarily on how industrial restructuring affected the spatial structure of industry, the urban space and the land use. In spite of the significant differences between the two cities there are also similarities in the development and prospects of industrial areas of Budapest and Tokyo. Not only do the urban structure and functional division of the cities transform but also the local society and urban landscape.

**Key words:** industrial areas, urban restructuring, land use, Budapest, Tokyo

### Introduction

Since the 1970s radical changes have started in the industry of developed countries, because of the changes in the world economy in the 1970s; although Rodwin has mentioned three other reasons (the intensity of international competition, the cumulative impact of research and innovation, and the enhanced importance of amenity) which have accelerated them (Rodwin 1991: 4). Due to these reasons modernization, technical improvement, and increase of efficiency have come to the forefront. Industrial production has also transformed. More and more emphasis has been put on the development of knowledge intensive branches while the significance of old “chimney-stack” industry was decreasing. All these processes have largely influenced the industrial areas of developed cities which have undergone relevant changes in their size, distribution and land use (Camagni 1991; Cheshire 1991; Doling et al. 1994; Rodwin and Sazanami 1991). According to Chapman and Walker these changes can also be considered in part, as natural concomitants

of the evolution of industrial firms and areas (Chapman and Walker 1988). Besides these changes, the physical landscape also changes in industrial areas, though later and more slowly (Cohen 1998), not to mention the social consequences, which are also very important.

Industrial transformation, however, began later in Eastern European cities, and accelerated only after 1989, when radical political turnabout opened the way for economic and social reforms. Since then, plenty of studies have been published on Eastern European economic restructuring, on how the socialist industry and industrial areas of cities have been transformed, and on the kind of challenges cities have had to face (Axenov et al. 1997; Gritsai 1997a; Kiss 1993; Korcelli 1995; Korec 1997; Misztal 1997; Turnock 1997). Compared with developed cities, the Eastern European ones face a much more difficult situation, because they have to cope simultaneously with the increasing pressure of globalization and with structural changes in all spheres of life. The other relevant difference between Eastern and Western countries is that the former need to restructure industry as a whole and each

Table 1. The role of Budapest industry in national industry, 1990–1999

Denomination	Share (%) of Budapest of	
	1990	1999
all industrial employees	21.7	12.6
all industrial firms with legal entity	37.9*	37.8
all industrial plants	30.5	20.7**
all industrial investments	19.1	12.5
all industrial firms with foreign interest	33.4	31.8

\* Data from 1992.

\*\* Data from 1997.

Sources: Statistical Yearbook of Budapest, 1990, 1992, 1997, 1999.

individual firm simultaneously. In the West only a small proportion of enterprises or of a particular sector need renewing at any given time (Hillman 1992). That is why the processes taking place in East Europe are much more complicated and thus, it is presumable that they will require a longer time. Though considerable differences in the pace and measure of the changes can be experienced in the industrial areas of East European cities, the main trends of changes show many similarities not only to each other but also to West European cities. As a result of this, the differences between Eastern and Western cities decrease (Węclawowicz 1992). Proof of this trend is also to be found in this comparative study, as Tokyo represents the developed cities and Budapest the Eastern European ones.

Among Eastern European cities, the capitals are the most innovative areas of the countries and display the most immediate response to challenges (Gritsai 1997b), therefore the changes in their industrial areas are the most advanced. This can also be said about the Hungarian capital which is one of the most dynamically developing capitals in Eastern Europe. Budapest, where almost one-fifth of the national population is concentrated, is still the most important industrial center of Hungary. Although, during the last decade its significance has decreased due to the radical organizational and structural reforms in industry (Table 1 and Figure 1).

Based on the surveys and interviews carried out in Budapest and Tokyo, the main aim of this study is to demonstrate the most important trends in the changes of old, traditional indus-

trial areas in Budapest compared with Tokyo. (Traditional industrial areas are defined as those where industry was developed in the 19<sup>th</sup> century and in the first half of the 20<sup>th</sup> century.) The change in industrial areas is one of the main parts of an industrial transformation which also includes changes in industrial firms. The two processes (changes within industrial firms and changes in the spatial pattern of industry) are in close interaction with each other, and the emphasis is primarily put on the latter (changes in industrial areas at local levels) in this study. The major issues are how the industrial areas have changed and how this process has affected land use, the urban landscape and the structural and functional divisions of the cities. What kind of similarities and differences can be observed and why? As the changes in industrial areas can be very different in time and space, and it can mean rehabilitation, renewal, restructuring, and reconstruction, it is more correct to speak about changes as a whole (Figure 2).

In spite of being a developed city and a world city, Tokyo still has significant industrial areas compared to Western cities and its industry also plays a relevant role in the national economy. These were the main reasons for its choice as a case for comparison. For example, about 12% of all Japanese industrial firms can be found in Tokyo, where almost 10% of the total population of the country live. However, it is also obvious that the two cities differ from each other in many respects. One is their special position. Namely, Tokyo is a world city due to the acceleration of globalization begun in the 1980s (Fujita 1991) whereas Budapest will have

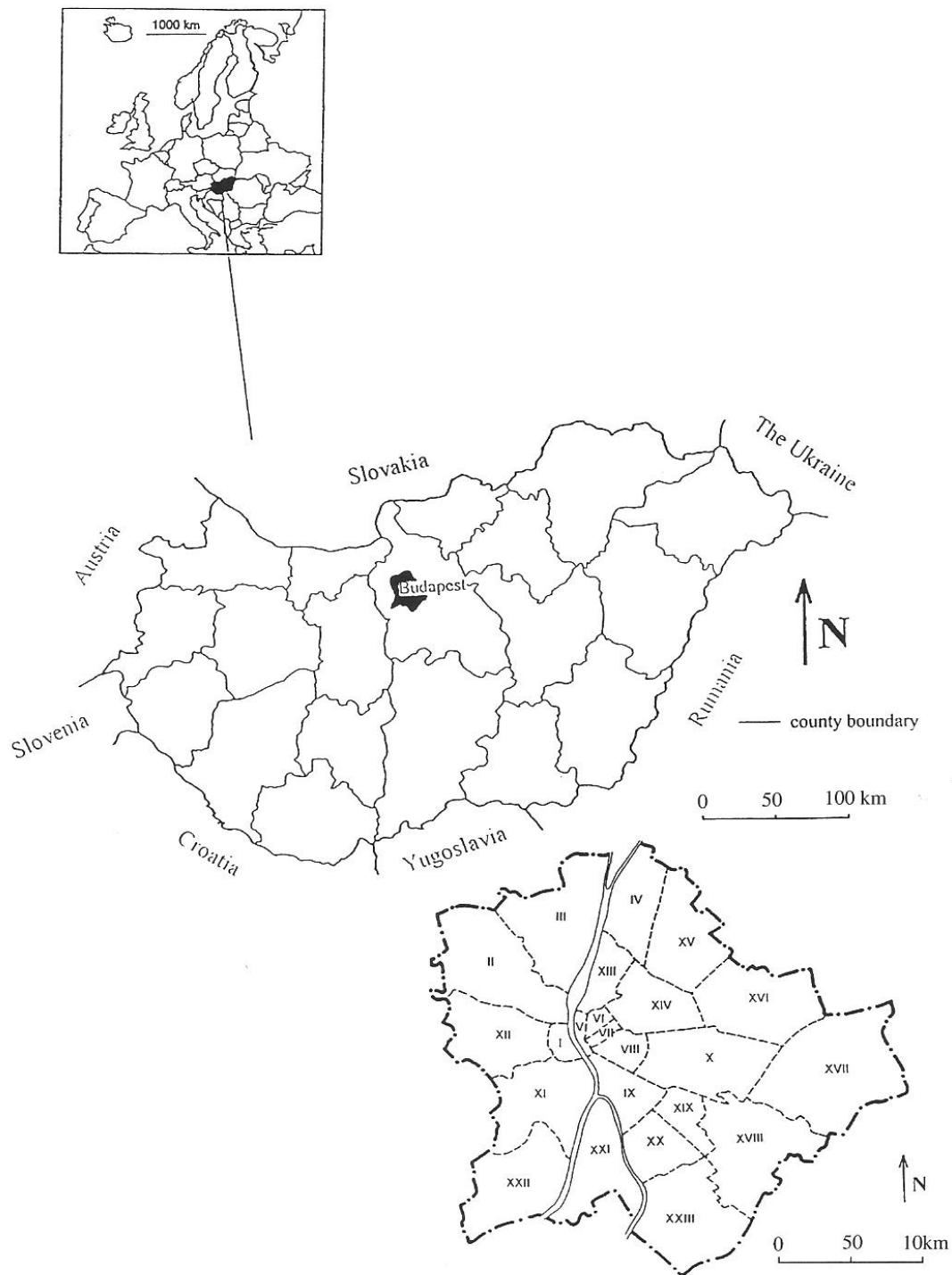


Figure 1. Location of Budapest and its administrative division.

to be taken into consideration as an important regional center of East Europe (Enyedi 1992).

### Research Materials and Methodology

This study primarily summarizes the achieve-

ments of the research project carried out in Budapest between 1995 and 1998, which were aimed at understanding the functional and spatial structural changes of the capital's industry. In order to get a real picture of these processes in its industrial areas at the end of the twentieth

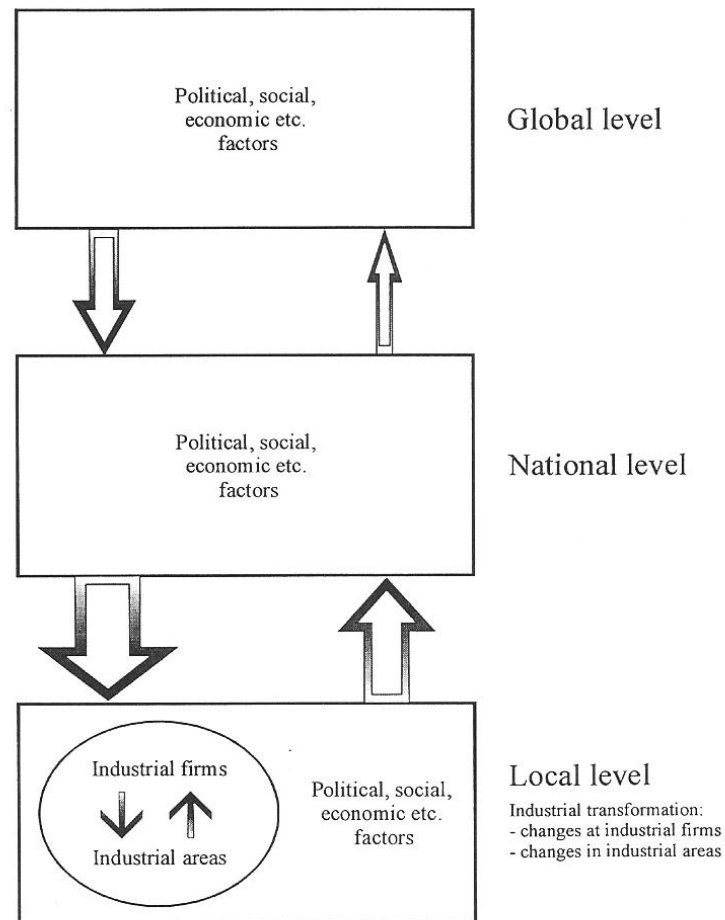


Figure 2. Model for industrial transformation.

eth century the areas have been mapped (Figure 3). Most of them are located in the so-called zone of mixed function (districts IX, X, XI, XIII, XIV, XIX, XX, XXI), which is between the city center (including the central business district: districts I and V; and the first residential belt: districts VI, VII, VIII) and outskirts (meaning the second residential belt: districts II, III, IV, XII, XV, XVI, XVII, XVIII, XXII, XXIII). They form a half ring around the city center which is mainly in the eastern part of the city because of the prevailing westerly winds, just like in western cities (Beaujeu and Chabot 1967). In Tokyo industrial areas are also located mainly in the eastern and southern part of the city because of the closeness to the more important water transport routes. They are also close to the city center, and partly, they are also between the city center and outskirts (residential areas). As a consequence the urban structure of the two

cities shows a certain degree of similarity.

In the course of evaluating the changes in the size and function of the industrial areas of Budapest, some methodological problems have arisen. Partly, they have come from the inextricable ownership within a given industrial area, because since 1989 lots of new firms have been established in industrial areas occupied by one large firm during the socialist era. The other reason for the difficulties was the functional diversity of new firms which can be found in the traditional industrial areas. As most of the newly founded firms deal with not only industrial activities but also with non-industrial activities (like repairing, trading, storing), therefore it was rather difficult to estimate how much the given area is utilized by industry and to what extent by other sectors of the economy. That is why the following principle has been pursued. Based on the primary activity of firms

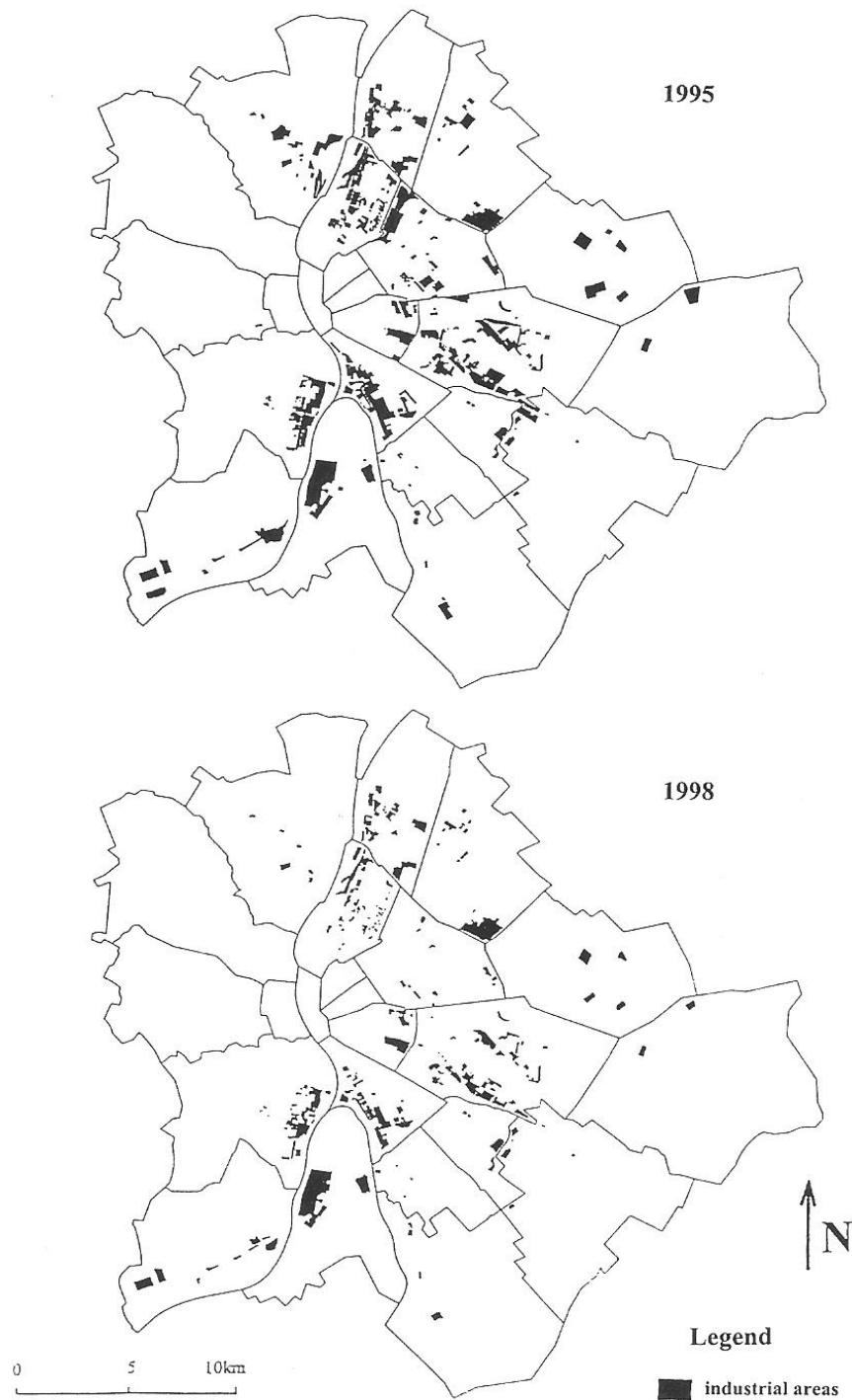


Figure 3. Industrial land use of Budapest (1995, 1998).

has been taken into consideration and based on that the percentage of the given area utilized for non-industrial purposes and those for industrial purposes were estimated. Due to this, the final figure based on the observations and estimations is not free from subjectivity. In spite of

this, it is suitable for a graphic indication of the main shifts taking place in the older industrial areas.

Moreover, data from various statistical publications, and detailed information about industrial firms from the Industrial Almanac were

also used. Interviews with local government leaders in some Budapest districts also helped to create a real picture of post-socialist urban restructuring in industrial areas.

Due to a short-term study tour in Tokyo in 1996 the Hungarian author has also had a possibility to do similar research in the Japanese capital with the contribution of the co-author. We visited some industrial areas in Tokyo (e.g. Ota-ku, Katsushika-ku) to size up the changes. From the viewpoint of this research the area of the 23-Ku is the most important since the largest proportion of industrial areas of Tokyo can be found in this part of Tokyo Metropolis. Thus, the area of the 23-Ku should be understood to be Tokyo, where even nowadays more than 80% of industrial establishments and employees of Tokyo Metropolis are concentrated.

We also conducted interviews with the owners of some industrial firms on how they see the future of their enterprise and the land use of the given area. The talks with the experts worked for the Tokyo Metropolitan Government have also provided useful information and data for our research. Revealing the main trends in industrial areas and their different impacts, we also made an attempt to reply to the following question: whether there is any significant difference between Eastern European cities (Budapest) and developed cities (Tokyo) or the former ones "simply" follow the latter ones, even if with some delay, independently of their historical past, social, economic and political relationships.

## Development of Industrial Areas

### Budapest

In the Hungarian capital the formation of industrial areas began more than 130 years ago, when the industrialization of Budapest started. The location of industry was influenced by several factors, such as natural endowments, landprices, location of residential areas, transport possibilities, the spatial pattern of public utilities and different town-planning measures (Bernát and Viskéi 1972). The machinery, textile, and food industries developed at the most rapid pace. Location and spatial pattern of each

branch also began to develop at that time. This resulted in certain branches beginning to concentrate into particular parts of the city (for example the printing industry was concentrated in the city center, the food industry in district X and machinery industry in districts XIII and XXI).

By the beginning of the twentieth century, Budapest had become a modern city with large and significant industrial areas, which formed a crescent around the city center. Most of them are found on the Pest (left or eastern) bank of the city as the Hungarian capital is divided into two parts (Buda and Pest) by the river Danube. Later this location considerably determined the urban structure and land use. Due to the large-scale industrial development and thus, to the homogenization of land uses the urban landscape became a truly "industrial" one in this part of the city.

Between the two world wars mainly small industrial establishments were formed and the existing firms developed further. As a result neither the spatial pattern nor the structure of industry changed significantly.

After World War II, during the reconstruction there was an opportunity for the relocation of industrial areas away from the inner part to the outer part of the city or countryside, but finally it was not carried out, as most of the companies were rebuilt in their former place. Thus, relevant change in the spatial distribution of the industry did not take place after 1945 (Preisich 1969). But its location within the city had modified very considerably, because of the change of administrative boundary of Budapest in 1950, when 23 settlements (mainly the areas of the recent IV, XV, XVI, XVII, XVIII, XX, XXI and XXII districts) were attached to Budapest. Due to this, the situation of the "industrial crescent" also changed as the industrial districts were placed in the middle of the city, so to say, stuck between the periphery and the inner city. Later, this kind of urban structure became the source of much tension because, among other reasons, of the lack of room for the expansion of firms.

During the decades of socialism the industry of Budapest developed further. Several new companies were established mostly in heavy



industry and the old ones were improved too. The area of industrial land use also increased and in 1960 it accounted for 3,600 ha (Bernát and Viskzei 1972). This was 6.8% of the total area of 525 km<sup>2</sup>. Considerable concentration of industry, involving the overcrowding of industrial areas of the capital and increasing environmental pollution, necessitated the restriction of the development of industry and the establishment of new firms in Budapest. Because of this and decentralization efforts, the size of industrial areas grew only slowly from the 1970s, when the need for intensive development became more and more important. At the end of the 1980s the industrial areas occupied 4,538 hectares (8.6%) in Budapest (Városi Tanácsszerk 1988) and formed three main parts: the Northern district, the Eastern-southeastern district and the Southern district (Bernát and Viskzei 1972).

### Tokyo

The beginning of industrial development of Tokyo was just as delayed as that of Budapest compared to Western European cities. Beside local craftsmanship, the production of manufacturing industry has accelerated from the end of the nineteenth century. During the Meiji era (1868–1911) many new factories, primarily paper-, glass- and cement-plants were established mostly on the then urban fringe. The export-oriented branches were developed along the port of Yokohama and the import-oriented ones along the Keihin-canal. Small firms of daily consumer goods basically settled down in the eastern part of Tokyo. The choice of location was promoted by several factors, including a huge consumer market, a large available labor force, developed infrastructure and cooperational links. Machinery industry, textile industry, paper industry and construction developed the most intensively (Murata 1980). The size of industrial areas also increased, although the area occupied by industry was still very limited. However, by the beginning of the 20<sup>th</sup> century, the spatial structure of industry was also formed in Tokyo and it is still visible today. These industrial areas have been mainly in the eastern and southern parts of Tokyo (Takeuchi 1980).

Tokyo was twice the most important industrial center of the country (Murata 1980): first in the 1940s due to the rapid development of heavy, mainly chemical industry and then in the 1960s when the machinery industry underwent intensive development, but the fast development of other branches also contributed to this importance. At the same time, strong environmental pollution, the exaggerated concentration of industry and the congestion have urged the government to pay more attention to the decentralization of industry. Since the 1960s, an increasing number of firms and factories have therefore been relocated to or established in the wider vicinity of the city, farther from the city center, along the expressways and main roads in the Tokyo Metropolitan Region. Later, this process was further hastened by rapid tertiarization. As the tertiary sector has required more and more space, often obtained from industrial areas, the functional transformation has also accelerated and industrial areas have been utilized in different ways.

The boundary of the industrial region of Tokyo, which is the largest industrial area of the country, can be drawn by almost a 100 km radius ring, within which three zones (outer, intermediate, inner) can be distinguished (Takeuchi et al. 1996). From the viewpoint of further comparison, the spatial structure of the inner zone (the 23-Ku area or Inner-Tokyo) of Tokyo Metropolitan Region and its changes are important, because most of the industrial areas of Tokyo Metropolis can be found here. Their share reached 7.7% (617 km<sup>2</sup>) at the beginning of the 1990s (Urban Development Office 2000). Three major areas of industrial concentration can be distinguished in the 23-Ku area. Machinery industry is concentrated in the southern part of Tokyo, light industries or consumer-oriented industries are concentrated in the eastern part of the city, while the information industry—printing, publishing and information services—is concentrated in the central business district and in the northern part of Tokyo (Fujita 1991; Takeuchi 1980; Takeuchi et al. 1996).



## Main Tendencies in the Last Decades

### Budapest

Since 1989, the most important scene of the changes taking place in industry in Budapest has been the traditional industrial areas, where most firms can be found. Following about 130 years of development, now Budapest again has the possibility for functional transformation of the industrial areas and for the relocation of those industrial areas, which are placed inconveniently from the point of view of urban development. Of course, the measure of change is quite different in each quarter of the city since industrial areas and firms are in different phases of transformation or development. This can be traced back to numerous factors such as size and location of industrial areas, the branch structure and the size of the firms which are in the same industrial district. In part, these are the same elements which influence the prospects of each firm and area. There will be areas which remain almost unchanged, and others with fairly good changes of industrial renewal, but there will also be areas from which industry will disappear and be replaced by other functions, as well as new industrial areas which come into being.

During the last decade, basically, two parallel but opposite processes can be observed in the capital's industrial areas. One is the vanishing and functional transformation of industrial areas while the other refers to their entire or partial renewal. The former is rather typical of the northern, north-eastern parts of the city, whereas the south, south-eastern parts are characterized by the latter. However, these trends can also simultaneously occur in the neighboring industrial areas or within one industrial area. The relatively fast deindustrialization in the northern part of the city is closely connected with the acceleration of tertiarization, with the expansion of the city center and with the local development policy. Because of the lack of space the city center is expanding mainly into those directions which are not so far and which have good transport links. It penetrates into the former industrial districts

and expands, feeler-like along the more important main roads. Due to this process and to the reinforcement of city-functions, the center of Budapest is coming to be similar to Western cities (Kluczka 1996). Similar expansion of the city center has been experienced in Tokyo, although small firms there, as representatives of local industry, were somewhat "obliged" to relocate or close down because of the pressing lack of space (Takeuchi 1985). In addition the built environment is more favorable in the northern part of Budapest, and thus, it was more attractive for non-industrial activities. The opposite of the reasons mentioned above are true for the southern part of the city, where industry will remain in the long run, but on a much smaller area. Owing to these, in the 1990s the extent of the industrial areas of Budapest has spectacularly decreased from 8.6% to about 4.5% (Figure 3).

The pace of transformation is the fastest and the most visible in the northern and north-eastern industrial areas of Budapest, which mainly belong to the districts IV and XIII. That is why this part of the city can be considered "the classical example" of the transformation of industrial areas. This has manifested in the high rate of firms closed down between 1990 and 1995 and in the significant volume of investments into the non-producing sector (Kiss 1993, 1999). The number of industrial employees have also considerably decreased during the past two decades. For example, their number has fallen from 24,545 to 15,409 in district XIII and from 20,928 to 18,363 in district IV between 1980 and 1990. Since then this trend has been accelerated though exact data is not yet available. Thus, deindustrialization, which is considered one of the elements of industrial restructuring and which has many hidden aspects (Cheshire 1991), is the most advanced in this part of the city (Figure 4).

Derelict and redundant industrial areas and buildings have developed in quite a different way. Most of them have been or are utilized for non-industrial purposes, which means the "adaptive reuse" can be observed in Eastern European cities too (Cohen 1998). Their utilization, in fact, depends on the intricate relationship of different factors like size and location of



Figure 4. Functional transformation of industrial areas in Budapest district XIII, 1995–1998.

the given industrial area, the number of firms accommodated and their sectoral structure, circle of owners and the volume of changes in the utilization of buildings and/or areas within each firm. The rehabilitated industrial areas can be used in many ways (green areas, parking places, playing fields etc.), however, nowadays commercial and service facilities are established most frequently due to the intense tertiarization of Budapest. These areas and buildings mean new sources, new places for the new functions of the city as its administrative area cannot be changed. The industrial function in the

northern industrial areas is replaced mostly by tertiary (commercial, repairing and service) functions. On the former industrial areas or in the buildings renewed today already there are many smaller or larger shops, supermarkets, different services and warehouses. Among them some extremely large establishments can also be found, for example the first shopping and entertainment center of Budapest, Duna Plaza, was built on the site of a former shipyard in district XIII in 1996.

The size of old industrial areas utilized for administrative and office purposes is relatively

limited and can be estimated to be no more than a few per cent. Usually, the existing industrial buildings are rehabilitated, reconstructed and let for such functions. Several former "socialist" companies have tried to let their rooms. Generally, both sides (hirers and renters) benefit because it ensures some income for the former in order to survive. At the same time leasers have to pay less rent, because these rooms are often far from the city center, although they have good transport connections. In addition, their infrastructure (public utilities, telephone, fax machine) is also favorable, so they are especially popular with starting enterprises. Such old buildings with a new function can be found both in the northern and southern industrial areas of Budapest. It is less frequent that a completely new building is built for office and administrative functions within a former industrial area. The best examples of this are the International Trade Center and Duna Office Center, which are very modern, and a few storeyed buildings with glass walls in district XIII.

According to the surveys, in the Hungarian capital the reutilization of old industrial areas as residential areas is not popular. Flats were built only on a very small proportion of redundant industrial areas because of their unfavorable location and social-cultural surroundings. It is not easy to sell these houses, not because of the quality of the flats which are large, very modern, well-equipped, even luxurious, but because of the low prestige of their neighborhood. This also has a very close connection with the qualitative distribution of the population living in Budapest, the roots of which are to be found in the historical development of the city. In general, the residences of workers on the Pest side have developed around factories. In these quarters, living conditions, infrastructure and the qualifications and educational level of people were (and remain) worse than in the other parts of Pest or in Buda. It is very difficult to change this "mental picture" in peoples' minds, and hence the image of these areas; it will certainly take a long time to demolish this "mental obstacle." It is therefore understandable that people who are wealthy and well-educated hesitate to purchase such flats and settle down in

these areas.

The change in function and expansion of the central business district can also be observed in the southern, south-eastern industrial areas of Budapest primarily along the River Danube. Here, mainly in districts IX, X, XI, and XXI, the transformation is progressing much more slowly than in the north. In this region industry must be reckoned with in the long run and this part of Budapest can be seen as a 'relic' of the city's industrial past, as the main trend here is the maintenance of industry. This is confirmed by industrial investments of greater size than in other parts of the city (Kiss 1993) and by the lower rate of closures of firms. Between 1989 and 1997, for example 25 firms were closed down in district X and 26 in district IX whereas 65 in district XIII. Only those firms which are not polluters and/or are not located close to residential areas can remain in their original location. So far, the relocation of industrial firms into the agglomeration of Budapest has not taken place. This is probably because those firms which should be relocated do not have money to cover the costs of relocation, as most of them are old, Hungarian-owned and not so profitable (Figure 5).

As in the southern, south-eastern parts of the city the most important task is the rehabilitation of industry and old industrial area, and it is probable that this region has received the larger part of industrial investments. In Budapest an average of 60% of the sums invested have been spent on purchasing machinery and equipment in the 1990s in order to raise the technical level, and in a wider sense, to reduce the lag. Due to this investment industrial establishments are undergoing renovation and modernization. In spite of the fact that some new industrial buildings and halls were established in old industrial areas, they have not affected the spatial structure of industry, because this renewal process has taken place mainly "within the gates of factories." Local observations and interviews have also proved that the rehabilitation or renewal of industry and industrial establishments have taken place much faster in those firms where the owners (investors) were partly or fully foreign. For example in 1999 almost 80% of all industrial investments in Bu-



Figure 5. Functional transformation of industrial areas in Budapest district X, 1995–1998.

Table 2. Industrial investments in Budapest, 1985–1999

Denomination	All industrial investments (million HUF)	Share (%) of industrial investments of all investments	Share (%) of industrial investments spent for		Share of foreign investments of all industrial investments
			machines	construction	
1985	12880	26.2	42.4	52.1	—
1990	18310	25.3	39.7	56.3	—
1995	64003	22.2	61.0	29.4	40.9
1999	110522	19.6	61.8	37.0	79.8

—: No data.

Source: Statistical Yearbook of Budapest, 1990, 1999.

dapest originated from foreigners (Table 2).

Since 1989 Hungary received more than US \$20 billion foreign capital, of which more than half (56%) has been attracted by Budapest. About 30%, the largest proportion, has been invested in industry. This means that the industry of Budapest is very attractive for foreign investors. In 1999, 31.8% of all industrial firms with a foreign interest were concentrated in Budapest. Most of them can be found in the traditional industrial areas as many foreigners have engaged very actively in the privatization

of old but profitable firms. As a consequence these firms which are partly or fully in foreign ownership are not greenfield investments (Figure 6). The other reason for this is that the price of sites is very expensive in Budapest. Thus, a foreign investor who wish to establish a greenfield industrial firm prefers to establish it out of Budapest, in its agglomeration. The agglomeration of Budapest, consisting of 44 settlements plays a very important role in industrial development because it has many advantages such as closeness to the capital city, skilled labor-

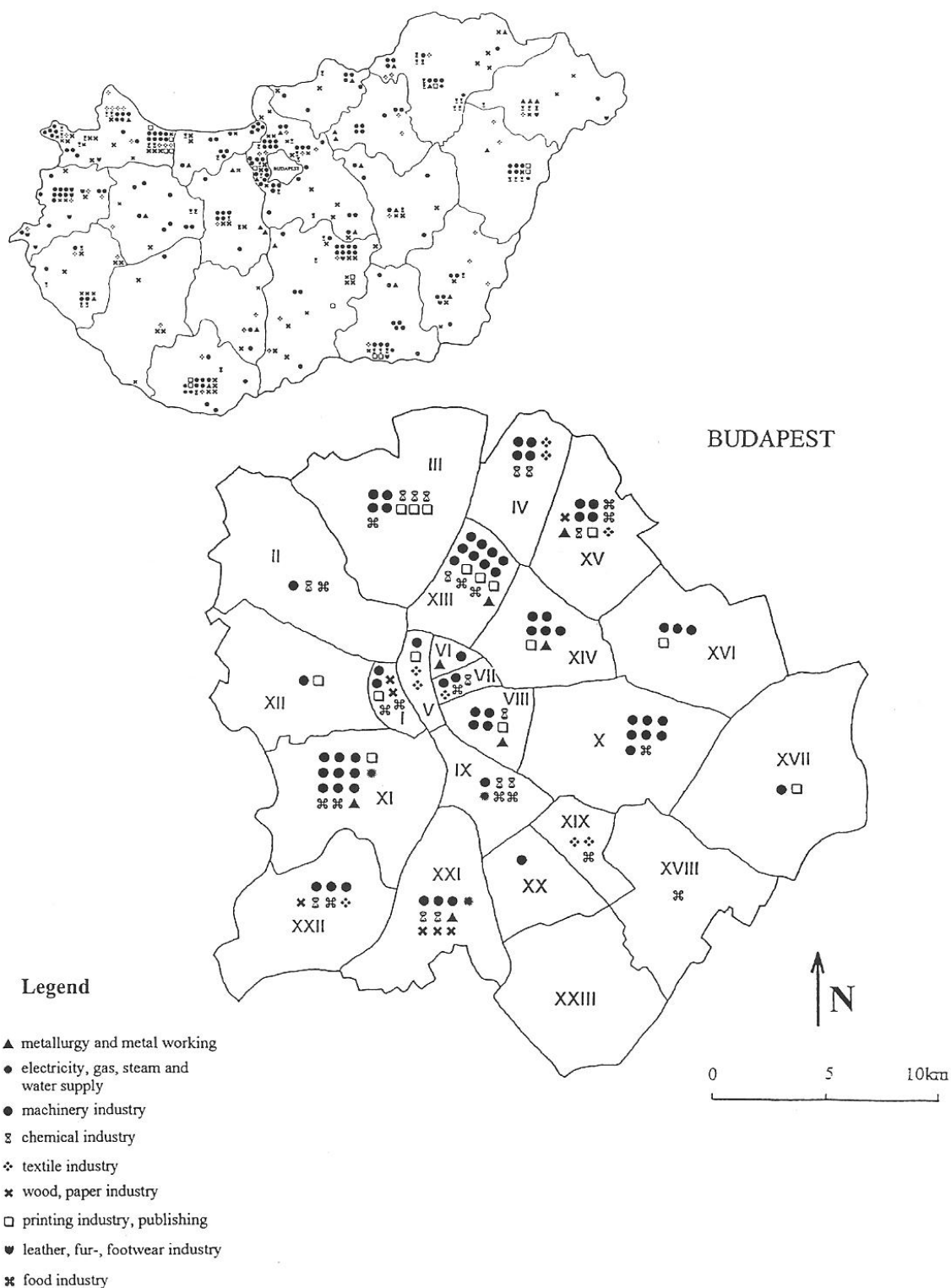


Figure 6. The most important industrial firms with foreign interest by branches in Hungary, 1998.

force, cheaper prices and large free places. But in the case of Budapest and its agglomeration, the formation of a high-tech corridor (as in

Tokyo) cannot be observed, as different firms belonging to different industrial branches have settled down.



The changes in the industrial areas have manifested in the local townscape, too. The former homogeneous industrial landscape transforms and an overall diversification of land uses can be observed in this part of the city. They are indicated partly by renewed and/or new buildings with other, non-industrial function. Further, the whole urban landscape, atmosphere and image of the district have been transformed by commercials, advertisements, billboards, flags and other colorful inscriptions which have emerged during the past few years. All these can be considered as the "indicators" of the physical change, which are often obvious but sometimes very subtle (Cohen 1998). Due to the functional transformation the social surroundings of the former industrial areas also change. Although progressing quite slowly, change can already be observed, e.g. infrastructure is being renewed and old residential houses and public buildings are being renovated. As a consequence, land and flat prices are increasing, which will probably promote the transformation of the social structure of these areas too, where mainly manual workers live. These old residential areas of "working class" will slowly change and in the long run a new social structure will be developed.

### Tokyo

In Tokyo the changes in the industrial areas and their (re)utilization began much earlier than in case of Budapest. This process has been promoted by the fast development of the tertiary sector and by the acceleration of globalization since the 1980s, as a result of which Tokyo has transformed into a world city. However, according to Machimura there are "... essential differences between Tokyo and other primary world cities in core countries." (Machimura 1992: 114). One of them can be that Tokyo still has a very important role in the national industrial system, though, in the 1990s the rapid appreciation of the yen weakened the competitiveness of industry in Tokyo and partly owing to this, industrial firms were relocated into the overseas countries in increasing numbers (Takeuchi et al. 1996). This has also contributed to the decreasing of old industrial areas.

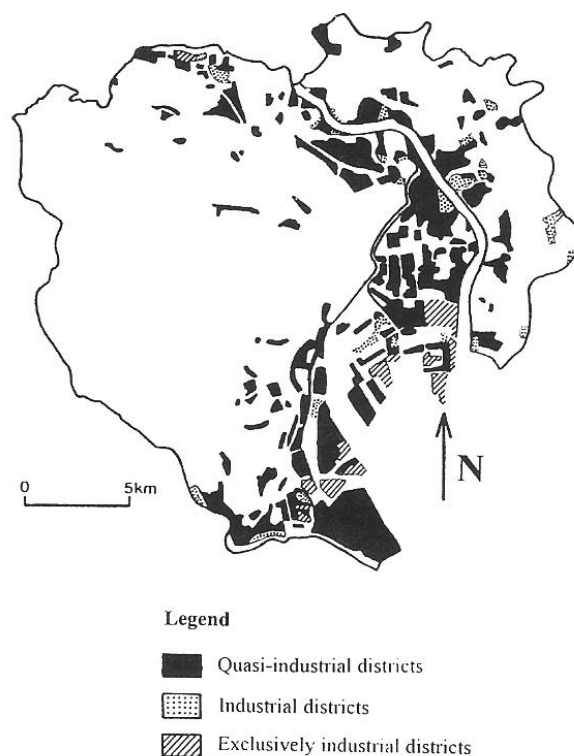


Figure 7. Industrial land use of Tokyo (1996).

Between 1986 and 1991 the industrial areas of Tokyo have decreased by 258 hectares and this trend has continued. Nowadays the rate of Tokyo's industrial areas is 6.8 per cent which can further decrease in the future, even if slowly (Urban Development Office 2000). Of course, the reutilization of old, redundant industrial areas has required the strengthening of the importance of urban planning and the application of new approaches not only in Western cities (Hall 1991) but in Tokyo too. This has also been realized by the Tokyo Metropolitan Government and much more attention is paid to the development and renewal of these areas (Figure 7).

Of the three main industrial districts of the 23-Ku area, the transformation of industrial areas is the most intensive in the eastern one, that is characterized by "localized industry" (*jiba sangyou*), however, such areas can be also found in the southern part of the city (Takeuchi 1985). The roots of such industrial areas can be traced back to the 19<sup>th</sup> century. Their peculiar feature is that they are a mixture of residential areas and workplaces. People working here also live here and they form a special "industrial commu-



nity" on a local scale. Firms are usually small with a few employees and crowded. Most of them can be found downstairs while flats are upstairs. Generally, a few people (a manager and workers), mostly family members, work together in these workshops which are usually "family enterprises." Thus, there are very close working relationship and information flow between them. Many of them are subcontractors which means that they produce mainly parts for large companies from where they also get materials. The firms are well-equipped with modern tools and machines. Compared to the former decades the largest change can be seen in this regard. In the course of field work a new, modern and quite expensive machine could be seen at almost each firm. Some of them were purchased on credit in order to be able to produce high quality products and to be able to maintain the firm's existence. The other relevant change is that more and more firms have to employ foreigners from developing countries because of the lack of local workforce and because of the high wages in Tokyo. For example at the Sakurai Precision Industry Co., Ltd. established in 1966 there were five foreigners among the 25 workers; two from Bangladesh and three from Pakistan. The cheap laborforce is indispensable for these firms in order to be able to maintain their competitiveness. Otherwise, there have not been any significant changes in the main characteristics of this part of inner Tokyo over the past decades.

In the 1990s, the number of industrial firms has decreased very considerably. For example in the studied Ota-ward their number has fallen from 9,180 to 6,784 between 1983 and 1995. The main reasons for this are the following: environment pollution, dangerous and/or noisy, poor accessibility, low technical standards, non-profitability, expensive workforce and lack of inheritor. In addition the local government has not supported or stimulated their continued existence. Until the 1980s it was relatively easy to establish such a firm, but since then it has become more and more difficult. In spite of that, the basic policy of local governments (especially of the Tokyo Metropolitan Government) changed in the 1990s because of the recession, and lately more em-

phasis is put on the promotion of industry. The other reason for the decreasing number of such small firms is that the role of urban planning has strengthened. The new principles and regulations of urban policy are more strict concerning urban development and land utilization. This is also the reason why a manager of another firm complained that he would like to expand, but is not supported by the local authority. Because of this and the high land prices it will be a severe problem for him to acquire new land in the future, and this may cause the closure of his firm. During the last decades land prices have increased very much, a factor which is closely connected with the increasing role of Tokyo in international life, in the global world and with the continuous expansion of the central business district. The price of industrial land is about twice expensive in the 23-Ku area than in other parts of the Tokyo Metropolis. Despite declining land prices in the last years, prices are still high. This was also the reason why one of the managers interviewed could not merge the four sites of his firm which were quite far from each other. This situation is very unfavorable from the aspects of production and cooperation within the firm.

As the central business district requires more and more space, therefore it penetrates into these industrial areas in order to occupy new areas for tertiary functions. Meanwhile, different factors "oblige" managers to sell their firms and flats. As these places are often small and scattered, their reutilization often meets difficulties. To avoid this, there is a considerable pressure on the owners of the areas neighboring the derelict industrial areas to sell or move out (Fujita 1991). That is why the role and responsibility of urban planning and local authorities are more and more significant in the 1990s. However, the disappearance of these firms has given rise to another issue, namely the large companies will lose their subcontractors and this can cause severe problems. The only suitable solution would be if the residence and workplace remain together or in other words these "industrial communities" will continue to exist in the future.

According to the interviews, commercial, service, cultural and entertainment buildings or

houses are often built on redundant industrial areas. Due to this functional transformation in many areas, these "industrial communities" begin to disintegrate, although they still operate and look as Takeuchi characterized them about 20 years ago (Takeuchi 1974). The reutilization of these industrial areas and the new establishments built on the former sites have considerably affected the surroundings and the way of life of the local people (Murayama 1997). Moreover, the social structure, the structural and functional division of the given district will change in the long run, which can mean that they will lose their former characteristics which is one of the special features of Tokyo.

The other most important industrial district is the central one where communication-oriented branches are concentrated. Owing to its renewal and internal structural changes, it seems that these branches will remain in the future too. The experiences of Chapman and Walker have also proved that in a city center primarily communication-oriented branches (e.g. printing, publishing) can remain (Chapman and Walker 1988). The survey conducted in Budapest has also provided similar results (Kiss 1999). However, it is worth mentioning that in the Hungarian capital most of these firms have been established only after 1989.

The southern industrial district extending to Kawasaki and Yokohama along the high way and national road is the third, where the machinery industry prevails, forming a special, so-called "basic system of machinery industry" (Takeuchi et al. 1996). They purchase most of their parts and components from the neighboring specialized subcontractors. During the last decade numerous new high-tech establishments appeared in this region which have given new characteristics to the existing basic system. This is "...the largest center of the development of the new high-tech industry..." (Takeuchi et al. 1996: 24) in the whole of Tokyo. As in this district, which is the "new hardware center" and part of the high-tech corridor, further development of industry is the main trend (like in the southern part of Budapest), therefore the land use, the industrial landscape and the extent of industrial areas have not changed considerably and cannot be expected to do so in the

long run.

## Conclusions

Since 1989 there has been no relevant change in the spatial pattern of the traditional industrial areas of Budapest, as most of them still can be found on the Pest side. However, their extent has considerably decreased and today they account for about 4.5% of the city. The former large and continuous industrial areas have split into smaller units. This is primarily due to the functional transformation, the roots of which can be found in the radical changes in industry since the change in the political system. Today the processes occurring in the traditional industrial areas of Budapest are still in progress. As a consequence, the decrease of the traditional industrial areas will continue in the future too, although the pace will slow. Owing to these changes the old industrial areas will shrivel and remain only in certain parts of the city. This also means that industry will not disappear from Budapest, although its weight in the city's economic life will further decrease. But, compared to developed western cities it will be greater, as current data and new trends demonstrate.

In spite of the important historical, political, social and economic differences between the two cities, the major changes in the industrial areas of Budapest have shown clear similarities to the changes in the industrial areas in Tokyo. In the case of Budapest, however, these changes happened much later and they are not so advanced as in Tokyo, although they are proceeding at a relatively fast pace compared to other Eastern cities. This comparative research has also proved that the Hungarian capital does not pursue a completely new, unique way. Due to the changes taking place in industrial areas after 1989, the differences between Budapest and Tokyo and in a wider sense between eastern and western (developed) cities have decreased. This trend is important because it shows that Budapest has a good chance to close the gap and to join developed cities.

The functional transformation and the reutilization of industrial areas have had a great effect on the urban structure, on land use and

the urban landscape of both cities. Even more, the composition of the local society and local community has also been transformed. In sum, the changes in industrial areas can considerably affect their further development, integration and active participation in the changing network of cities at the beginning of the 21<sup>st</sup> century.

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