

THE ROLE OF TRANSPORTATION IN THE MODERNIZATION OF INDUSTRIAL CITIES IN WEST GERMANY*

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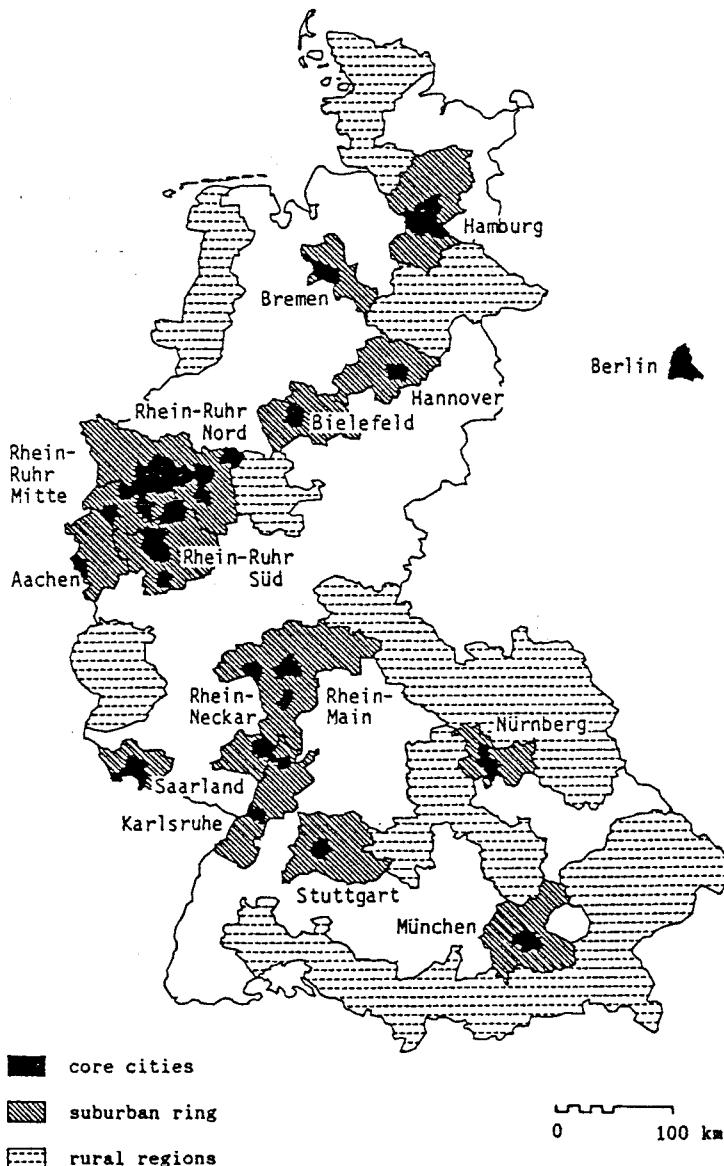
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1 INTRODUCTION

Like Japan, West Germany is undergoing a rapid process of structural economic change, with employment in the primary and secondary sectors (mining/agriculture and manufacturing) declining and in the tertiary sector (services) growing. However, unlike in Japan, the decline of manufacturing employment has started earlier and proceeded farther, while the growth in service employment has been slower.

These changes affect the urban regions in West Germany with different intensity.

On the one hand there are a few metropolitan regions which have developed into manufacturing, service, and communication centers of European or even global importance such as Frankfurt or Düsseldorf or have attracted the new growing electronics- or information-based industries such as München or Stuttgart (see Figure 1).



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Figure 1. Urban regions in West Germany.

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On the other hand there are many medium-sized urban regions which continue to lose in substance compared with those few lucky cities as well as through outmigration of population and employment from their core cities to the more attractive smaller towns in their surroundings. Among them cities with a strong base in traditional industries such as mining and heavy manufacturing (steel making, ship building) are most affected. For historical reasons, these 'old' industrial cities are all located in the northwestern part of the Federal Republic (see Figure 1 and Table 1).

Table 1. Indicators for selected urban areas in West Germany 1970-1986.

Urban area	Popula-	Employ-	Unem-	Value	Income
	tion change %	ment change %	ploy- ment %	added /capita DM	tax /capita DM
	1970-85	1970-85	1986	1982	1985
Hamburg	-4.7	-10.4	11.9	35,900	617
München	+10.1	+14.3	5.4	36,500	597
Stuttgart	-1.1	-3.3	4.0	31,600	573
Rhein-Main ^a	+2.3	+5.0	6.0	34,400	547
Rhein-Ruhr Mitte ^b	-2.4	-1.3	9.9	29,100	523
Bremen	-4.9	-2.0	14.0	32,200	475
Rhein-Ruhr Nord ^c	-6.7	-8.0	13.7	24,700	446
Aachen	+0.8	+2.6	10.8	20,400	400
Saarland	-7.5	-3.2	14.9	25,500	329
Berlin	-12.1	-9.7	9.9	29,100	314

^a Frankfurt ^b Düsseldorf, Köln ^c Ruhr Area Source: BfLR 1986.

The 'old' industrial regions were the first to experience the problems of urban decline: losses of jobs in the traditional sectors without compensating gains in the more modern technology or service sectors; mass unemployment and outmigration of the economically more active and mobile younger households, while the less mobile, older, poorer, and less skilled remained; the growing gap between the declining tax base and increasing responsibilities in the fields of welfare, health care and urban infrastructure; the physical decline of the city center indicated by vacated buildings, derelict industrial sites, run-down dwellings, and declining retail sales.

So these cities were also the first to develop strategies to overcome the problems of industrial decline. In doing this, they were partly helped by the government, but in more recent years they realized that they had to use their own initiative and resources. In some cities, these strategies have been very successful. By introducing a new style of urban management and planning they have transformed the traditional role of local government and created a fresh spirit of confidence and optimism.

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In this presentation, a brief overview of the most frequently adopted strategies and their degree of success or failure will be given. Special emphasis will be placed on transportation and transportation-related policies. However transportation cannot be seen in isolation, but must always be integrated into a comprehensive view of other aspects of urban and regional development.

In order to make the presentation more practical and illustrative, a concrete region will be used as an example. The region is the *Ruhr area* in the state of Nordrhein-Westfalen, with particular reference to the city of *Dortmund*, the location of the authors home university (see Figure 2).

2 THE RUHR AREA AND DORTMUND

The Ruhr Area is still the largest industrial region and urban agglomeration in the Federal Republic of Germany: on an area of 4,400 square kilometers, which is 1.8 percent of the total area of the country, its population of 5.2 million, or 8.5 percent of the national population, produces about 8.3 percent of the national income.

Growth and decline of this region are closely related to the development of the coal mining and steel industries which, with about 40 percent of all industrial employment, even today dominate the Ruhr industry (1). Based on the large coal deposits in the area, industrialization in the Ruhr region started in the 1830s and transformed this once rural region in less than a century into one of the largest industrial areas of the world with a highly diversified economic structure centered around the coal mining and steel industries. With the advent of cheaper and more convenient forms of energy, the demand for coal started to decline

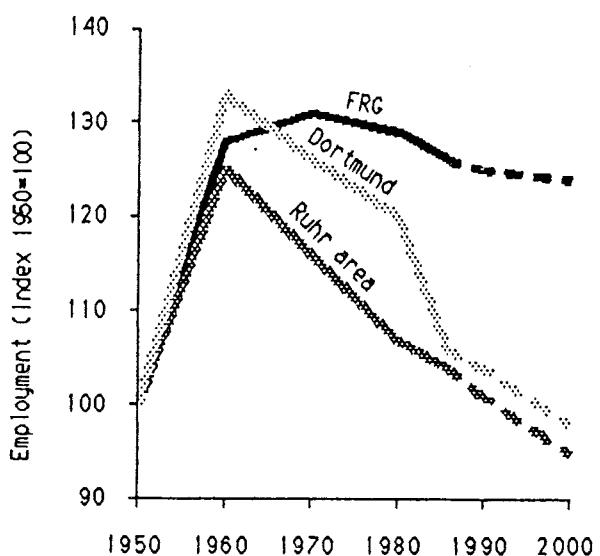


Figure 2. The Ruhr Area and its location in West Germany.

in the 1960s with the result that employment in the mining industry of the region has dropped from its peak of 470,000 in the 1950s to less than 100,000 today. During the same time the world-wide decline in demand for steel and steel products caused employment in the region's steel industry to drop from its peak of 200,000 in the 1960s to 110,000 today.

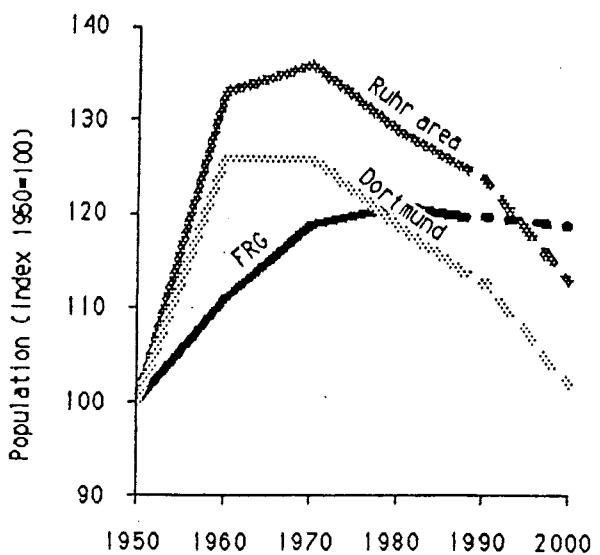
The impacts on the rest of the Ruhr economy have been severe: Total employment in the region declined from 2.4 million in the 1960s to 1.8 million today and is expected to continue to decline to 1.7 million by the year 2000 (2). What makes the losses of jobs in the traditional industries so serious, is that they are not nearly compensated by new jobs in the service sector: Between 1970 and 1982, service jobs increased by only 90,000, or 10 percent (compared with 18 percent nationwide), which means that only every third job lost in the manufacturing sector was replaced by a new job in the service sector. As a consequence, the unemployment rate in the Ruhr area had risen to 15 percent by 1985 and has stayed high since (Figure 3).

Unemployment would have been even higher if there had not been a massive movement of outmigration. From its peak population of 5.75 million in the 1960s, the population of the Ruhr area has declined to 5.2 million today and is expected to continue to decline to 4.6 million by the year 2000 (2). To a large part this decline is due to foreign workers who, for lack of work opportunities, return to their home countries in the south of Europe (foreigners constitute 7.8 percent of the region's population). However, there is also a strong migration movement to the more prosperous regions in the south of Germany. Since the 1970s, there is also natural decline due to a drop in birth rates resulting in a rapidly ageing population (Figure 4).



Source: Statistical Offices

Figure 3. Development of employment in Dortmund, the Ruhr area and West Germany 1950-1986(-2000).



Source: Statistical Offices

Figure 4. Development of population in Dortmund, the Ruhr area and West Germany 1950-1988(-2000).

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Dortmund is the most eastern of the large cities along the Ruhr valley. It developed rapidly from a small rural town in the early 19th century to a major industrial center. Coal mining, steel making and breweries used to be the major industries of the city. Of these coal mining disappeared when in 1987 the last pit within the city closed down (Figure 5). Steel making in Dortmund has always been a synonym for the Hoesch corporation. Hoesch in the 1960s employed nearly 40,000 workers in its three steel works in the city. Today one of the three has been closed down and the second will be closed soon, in the long term there will be between 5,000 and 7,000 workers left in the third and last one, this, however, will be heavily modernized.

So it is not surprising that most economic indicators for Dortmund are even more desolate than the ones for the Ruhr area as a whole. From its maximum employment of nearly 300,000 in the 1960s, the city has lost 60,000 or one fifth (Figure 3). More specifically, it has lost 90,000 jobs in non-service industries, but has gained only 30,000 in the service industries - again the relation of one job gained to three jobs lost. In the 1980s, the growth of service jobs has practically stopped. Unemployment in Dortmund therefore is even higher than in the Ruhr area as a whole: 18 percent.

The population development of Dortmund reflects its economic difficulties. From its maximum population of 660,000 in 1965, it has declined to 580,000 today and is expected to have a population of less than 500,000 in the year 2000 (Figure 4). During the 1980s, half of the decline was due to employment-related long-distance migration partly by foreign workers returning home, the remaining half to natural decline and suburbanization (3).

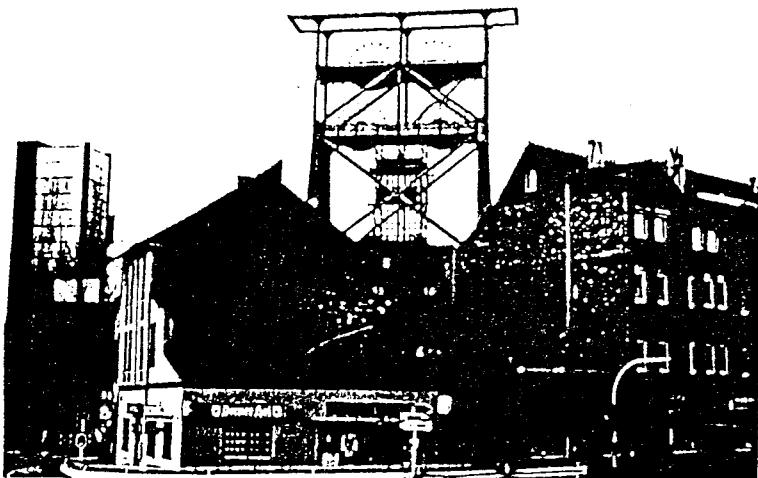


Figure 5. The last coal mine in Dortmund was closed in 1987. This is pit Gneisenau closed one year earlier.



Figure 6. One of the three steel works in Dortmund has already been closed, the second one will be closed during the next years.

3 THE INDUSTRIAL HERITAGE

Clearly the main cause for the economic difficulties of industrial cities like Dortmund and the other cities of the Ruhr is that their major industries belong to those suffering most from economic structural change. However, there are other factors closely related to their industrial past which made it more difficult for them to restructure their economies in response to new technological challenges and market demands.

In the mid-1960s, when the decline of the mining and steel industries became serious, the most important factors were:

- (1) *an out-dated infrastructure*: Roads, railways and canals in the Ruhr region were mostly built during the period of rapid industrialization and primarily served the purposes of heavy industry. As most freight traffic has in Germany as in Japan been taken over by trucks, the canals in the Ruhr area were underutilized, but expensive to maintain. So were the many industrial railways, which criss-crossed the region on high dams or viaducts, but were unsuitable for passenger transportation because they did not serve the population centers.
- (2) *lack of educational facilities*: Traditionally, the Ruhr area had no institutes of higher education, for well known reasons: the Prussian king did not want knowledgeable workers, for fear of revolution (the Ruhr became Prussian after 1815). So the only institute of technology in the western provinces of Prussia was not established in the rising industrial Ruhr region, but in far-away Aachen.
- (3) *a devastated environment*: More than a century of industrial activity had exhausted the natural resources of the Ruhr region to the limit. Rivers were polluted, soils contaminated, industrial emissions, in particular of sulphur dioxide and dust, were extraordinary. The image of the Ruhr as the "black country" in the rest of West Germany was notoriously bad.

In the 1970s and early 1980s, when the above three legacies of the industrial past of the region were already gradually being removed (see Section 4), other aspects of the industrial heritage received more attention as serious obstacles for regional change:

- (4) *an obsolete land use system*: During the industrialization period, the cities of the Ruhr grew almost without any planning control. Mining pits, factories, waste heaps and worker housing, hastily erected in the times of rapid growth, formed a disorganized, but rigid patchwork of incompatible land uses and scattered property rights. Many former industrial sites turned out to be heavily contaminated ('Altlasten') and could be reclaimed and cleansed only with great expense, if at all (4). Housing areas in mixed-used areas ('Gemengelagen') close to noisy and polluting factories were less and less accepted by the housing market.
- (5) *lack of urban ambiente*: The Ruhr cities were never elegant or charming. The few historical buildings that survived the industrialization period, were destroyed by the war bombings. After the war unimaginative commercialized architecture prevailed in the city centers largely dominated by the automobile, while urban sprawl made the suburbs virtually indistinguishable from each other.

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Besides, there were others less tangible factors related to the socio-political and institutional context of regional policy-making and planning that have strongly influenced and sometime retarded the process of economic restructuring of the Ruhr area:

- (6) *lack of a regional government*: For historical reasons similar to the ones that prevented the provision of higher education in the Ruhr area, the region never had a unified regional government. Even today it consists of 53 autonomous municipalities organized in 15 counties under 3 district governments all three of which are located outside the region. This means that for most project initiatives extensive and time-consuming negotiations and coordination procedures are required (Figure 7).

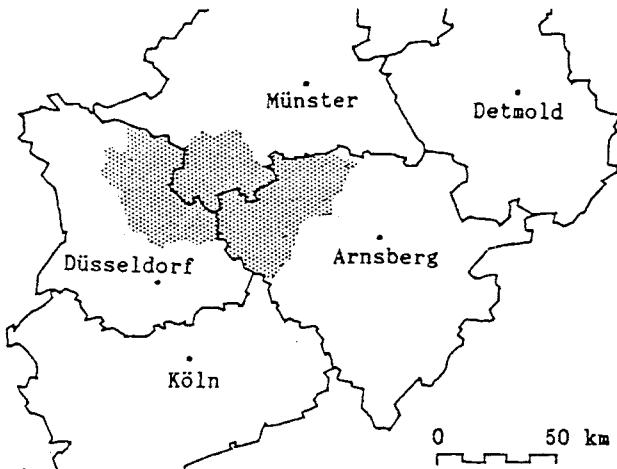


Figure 7. The Ruhr area is governed by three outside district governments.

- (7) *traditional management structures*: Pampered by long periods of high demand for its products and limited competition through stable government contracts and subsidies, both corporate management and labor unions of the Ruhr industry had developed attitudes and patterns of political behavior not conducive to innovation and change. In periods of slackened demand for coal and steel, management would quickly call for subsidies by the government, while labor representatives would insist on the privileges and higher wages granted to their clientele in better times.

This was the situation at the beginning of the 1980s, when it was becoming obvious that the decline in demand for coal and steel was not a temporary phenomenon but permanent and required a fundamental restructuring of the Ruhr economy.

4 GOVERNMENT STRATEGIES

The first three of the legacies of the industrial past of the Ruhr area listed above were addressed first, and since they fell partly into the responsibility of the Federal government, the first period of revitalizing strategies was largely determined by strong government initiatives.

To understand this, it is important to know that due to the Federal organization of government in West Germany, there is no national planning in the Japanese sense in the Federal Republic. While regional planning is the responsibility of the member states, the role of the Federal government is restricted to monitoring regional development and coordinating the regional planning activities of the member states, with the exception of regional economic aid, which is a joint responsibility (5). However, national railways, highways and waterways are in the Federal domain, as are the construction of public universities and environmental legislation.

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So it was in these fields that the Federal government started already in the 1960s to assist the Ruhr area (besides giving direct subsidies for alleviating the cost disadvantages of domestic coal and various indirect subsidies to the steel industry):

Transportation

- The Ruhr was given preferential treatment in plans for expanding the Federal motorway ('Autobahn') system. A huge grid of five east-west and six north-south autobahns was to provide the region with an efficient intraregional transportation network linking it to all parts of the country and West Europe. Today this system of motorways has been largely completed, with the exception of a few links which were to cut through partly built-up areas and therefore met with heavy local opposition (see Figure 8).
- Three of the new high-speed, high-comfort *Intercity* lines of the National Railways (Köln-Düsseldorf-Hamburg, Köln-Wuppertal-Hamburg, Köln-Hannover) were to pass through the Ruhr area meeting at a common node in Dortmund. The Intercity service has proved to be one of the major locational advantages of the region (see Figure 8).
- The region was to get a modern intraregional system of commuter railways (S-Bahn) operated by the National Railways. In addition, subsidies were offered to the cities to transform their tramway systems into partly underground light rail transit ('Stadtbahn') systems. The integrated network of public rail transportation thus created, which is now nearly complete, provides good accessibility throughout the region. However, due to growing car ownership and population decline it is insufficiently utilized and produces large deficits, which are a severe burden for the municipalities.

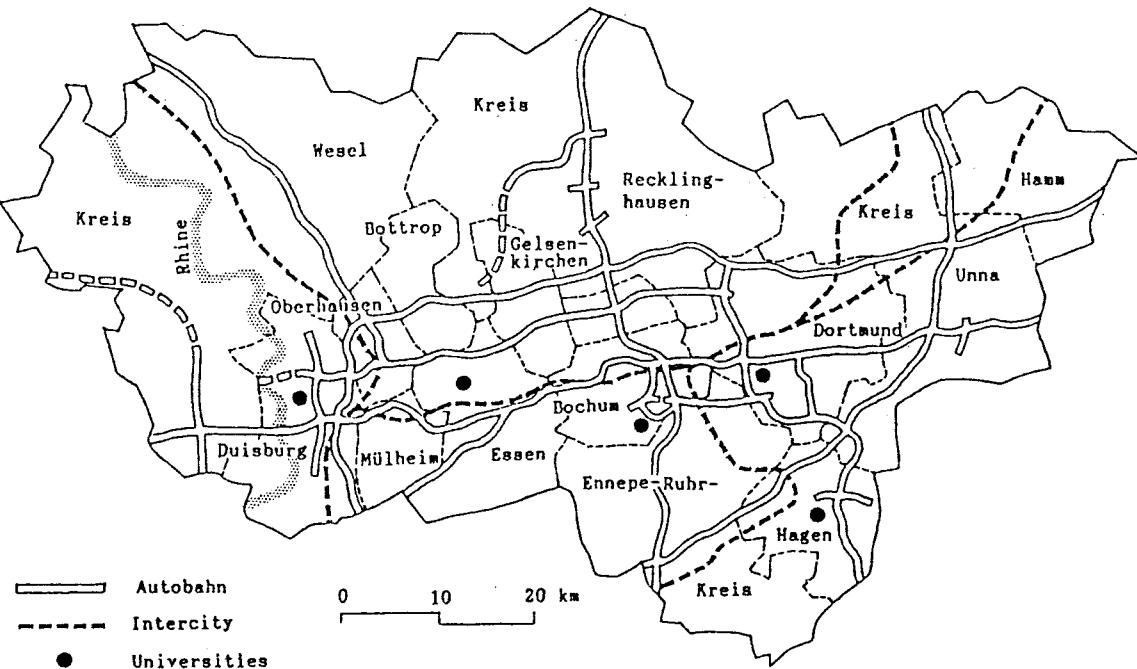


Figure 8. Autobahns, Intercity lines and universities at the Ruhr.

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- The waterways serving the region, mostly canals built more than a hundred years ago for the transport of iron ore, and the canal ports were to be deepened and modernized to accommodate the 3000-ton freight barges used throughout Europe.

Universities

- The Federal government agreed to finance five new universities planned by the state government in the Ruhr area (Duisburg, Essen, Bochum, Dortmund, Hagen). These five universities, which (together with some smaller colleges) today have a student enrollment of more than 100,000, may have been the most effective of all government measures. They have attracted a large number of students from other parts of the country and abroad and have added an intellectual component to the predominantly worker population of their host cities. More importantly, as it will be described later, they have greatly contributed to the economic transformation of the region.

Environment

- Already in the election campaigns of the 1960s, "a blue sky over the Ruhr" was an important issue. In 1974, the Federal Immission Control Law was enacted. It forced the Ruhr economy to extraordinary efforts to reduce the emissions of their production. Today the environmental situation in the Ruhr area has much improved, however the negative image of the region is still strong and hard to dispel.

These policies, while initiated by conservative Federal governments already in the 1960s, were mostly implemented by the Social Democrat in the 1970s. When the conservatives returned to power in 1979, they were not willing to do very much more for the depressed Ruhr region with its majority of Social Democrat voters.

So the (Social Democrat) state government of Nordrhein-Westfalen was left with the responsibility for the Ruhr. Its 'Ruhr Action Program' ('Aktionsprogramm Ruhr') of 1979 for the first time focused on the need to restructure the Ruhr economy towards new technologies and products. However, the program also stressed the importance of improving the quality of the living environment of the region. Federal and state funds together associated with the program totalled DM7 billion (¥490 billion) (3).

Yet it was all too obvious that such a program could not be more than a short-term emergency measure. In the very end the municipalities affected by the economic crisis had to rely on their own initiative and resources.

5 DORTMUND'S STRATEGIES

This was a new experience for the cities. Although local governments in the Federal Republic enjoy a high degree of autonomy, in the past they had not seen economic development as important part of their responsibility, except where land-use and transportation planning was concerned. In fact there had not been much need for economic promotion in the times of economic prosperity. In the good times the role of the cities had been to allocate land and infrastructure. This was predominantly an administrative and engineering activity. Now entrepreneurial acting was asked for.

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Most cities responded to this new challenge by setting up new or upgrading existing economic promotion departments and vastly increasing their personnel and money funds. So did Dortmund. In 1983, the city formulated in an 'Economic Development Program' the principal goals for its future economic development (3):

- transformation of the local economy away from the formerly dominant coal and steel industries towards modern technology-intensive growth industries with a large proportion of small and medium-size enterprises;
- parallel promotion of modern retail, business, administration, health care, education and cultural facilities;
- improvement of the quality of the living and recreation environment including education and culture.

To achieve these goals, the new Economic Promotion Department is to engage in the following activities (3):

- developing new and reactivating vacated land for new enterprises;
- improving financial aid for new enterprises by better utilizing existing funding programs and developing new forms of private and public financing;
- removing infrastructure bottlenecks to attract new enterprises;
- developing consulting and advisory services for new enterprises.

The six years which now have passed since this program was put into effect, represent a new era in Dortmund's local economic policy.

The new era can be characterized as the transition from passive response to active initiative towards the economic crisis of the city. But it was also a transition towards a new style of urban management which accepted the fact that municipalities have to rival on a highly competitive market for jobs and people where innovativeness and flexibility are essential. So 'city marketing' has become an important new field (see Figure 9).

Most importantly, however, it was a transition into a new style of cooperation between the public and the private sector. Traditionally in Dortmund the major groups of the power structure - local government, the large companies, labor unions and small businesses - had pursued their particularist interests more often than not fighting against

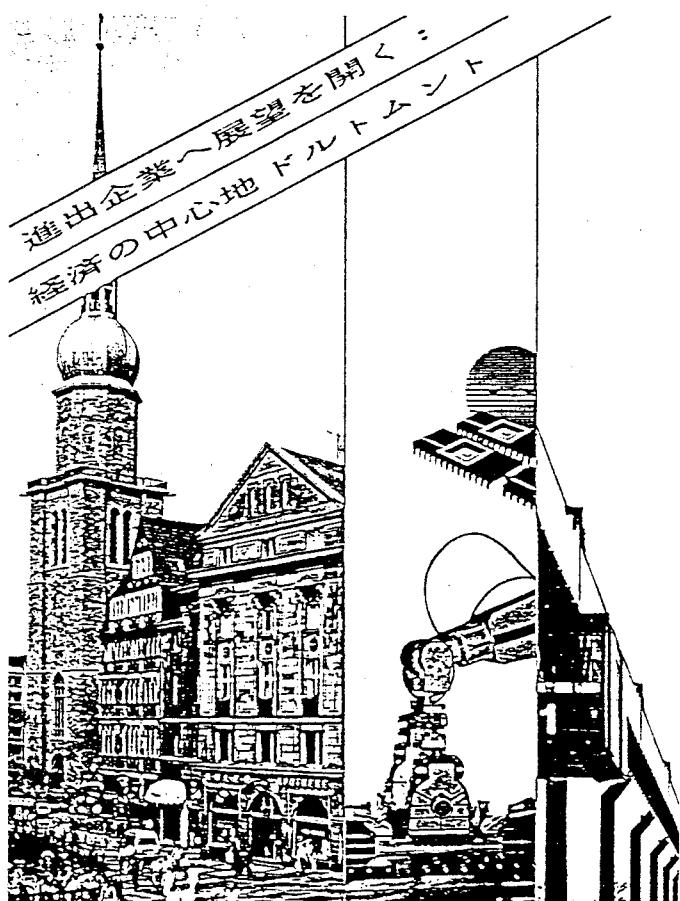


Figure 9. City marketing: Dortmund would like to attract more Japanese investors.

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each other. Now there was a consensus that only joint action could solve the problems of the city. This change of the political climate was influenced by reports on similar developments in US American cities (6), in particular by the example of Pittsburgh, which was the destination of frequent visits of politicians, journalists, scholars and university students.

In these six years the following five policy fields turned out to be most important (see 3, 7):

(1) *Innovation-oriented local economic policy*

These policies have the highest priority of all activities under the new economic policy. They aim at stimulating the establishment of new or attracting existing firms in the field of high-tech or information-based manufacturing or services, but also at supporting the innovation process within existing local firms. Special attention is given to the needs of small and medium-sized firms.

The University of Dortmund, which is in fact a Technical University, plays an important role in this process. Its computer science and electrical, mechanical and chemical engineering departments have developed strong ties with local firms in terms of joint projects and job placement of graduates (Figure 10).

However, the main results of the cooperation between the university and the region are the new Technology Center ('Technologiezentrum Dortmund') and future technology park set up on a vast expanse of land adjacent to the university campus, a choice location with autobahn access, an S-Bahn station, and an intra-campus monorail.

The Technology Center, opened in 1985, offers laboratory and office space for lease to firms wishing to engage in R&D in cooperation with university researchers. So far logistics, material sciences, electronics and software development have been the main fields of activity. Demand for space in the Center soon vastly exceeded capacity, so it had already to be expanded. Being jointly financed by the city, the state and with money from the Regional Fund of the European Community as well as by local banks and industrial firms, the Technology Center is considered to be the first successful example of a *public-private partnership* originating from the new 'Dortmund consensus' (Figure 11).

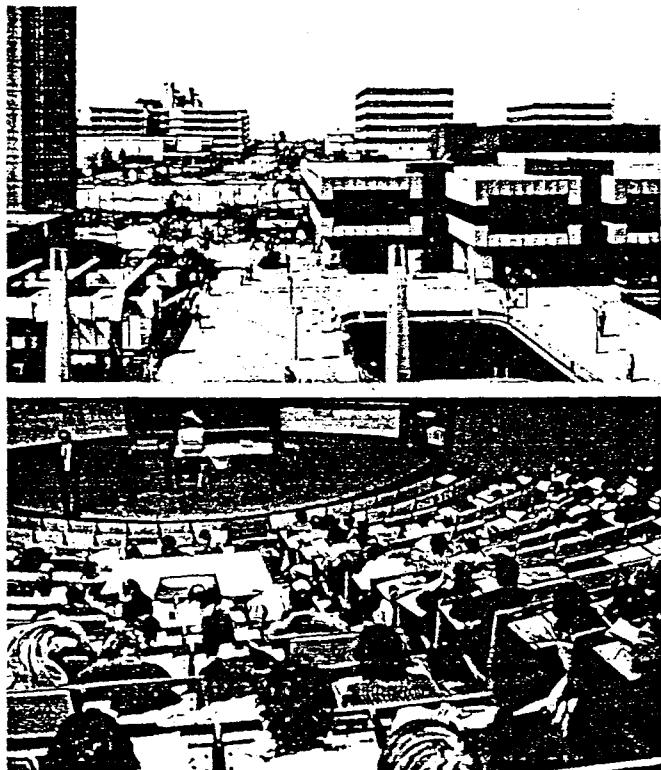


Figure 10. The University of Dortmund is a key factor in the region's modernization process.

Although its actual employment effects are small (today less than 100 researchers work in the Center), its spin-offs for the region are substantial. It certainly has contributed much to dispelling the negative image of the region and giving it a fresh, progressive appeal. As a consequence, there is an increasing inflow of firms or subsidiaries or research laboratories of large firms wishing to settle down in Dortmund (among them Sony and Alps, a Japanese semiconductor manufacturer).

To accommodate a part of these new arrivals, an area of 37 hectares adjacent to the Technology Center was designated as a 'technology park' with high architectural design and landscaping standards. The first buildings on this area have been recently completed, others are under construction (Figure 12).

An important part in establishing and maintaining contacts between research institutions and industry in the region play transfer agencies established at the university, the local polytechnic and the Chambers of Commerce and Trade.

Besides these activities directed at the private sector, the city and the university successfully lobbied for the establishment of new government-financed research facilities such as large institutes for logistics, robotics and synchrotron research supported by the Federal government.

(2) Employment initiatives

Pressed by high local unemployment and the powerful labor unions, the city has ventured into a new policy field aimed at creating job opportunities outside of established firms in the so-called 'informal' sector of the local economy.

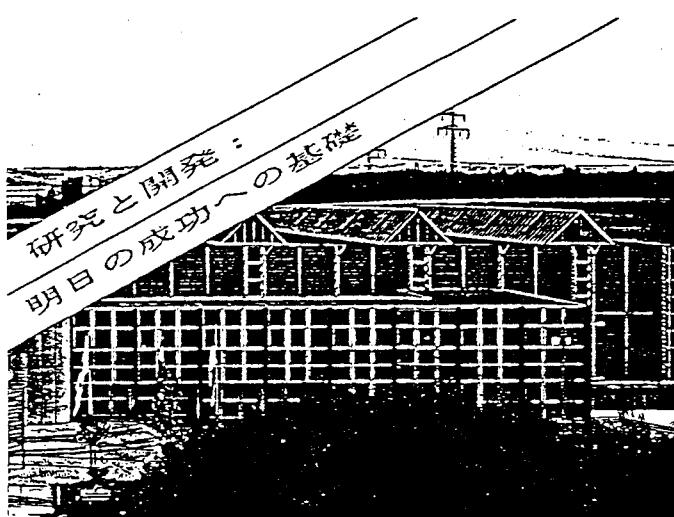


Figure 11. The Technology Center offers laboratory or office space for new enterprises. Despite recent expansion, it has always been occupied to capacity.

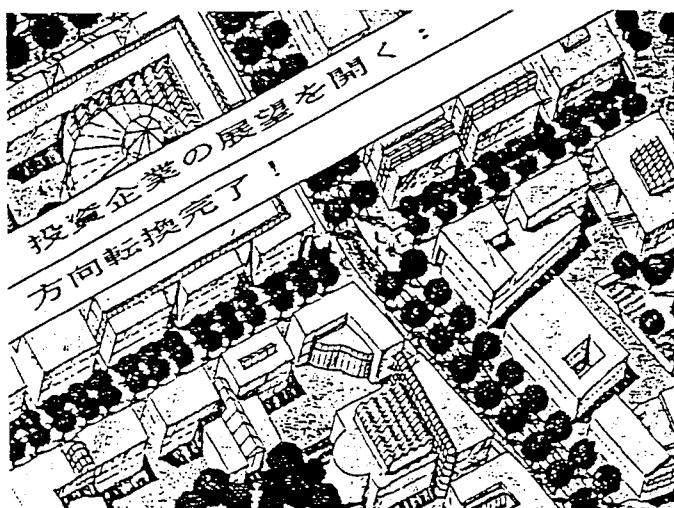


Figure 12. The new technology park sets high architectural design and landscaping standards. The first buildings have been completed.

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These efforts resulted in the establishment of a number of small private companies mostly working in the recycling and moving field. The city supports them by seed money from various sources such as the EC Regional Fund of the Federal Job Creation Program ('ABM') and by providing them with cheap space in vacated industrial buildings.

However, the results of these initiatives have yet been inconclusive. Although they have provided, and are still providing, badly needed jobs, in general these firms have so far failed to establish themselves a secure place in the market.

(3) Industrial land policy

Despite a growing stock of vacated former industrial land, the city finds it difficult to offer suitable and attractive sites to firms deliberating to settle or relocate to Dortmund. Among the reasons are unwillingness of the land owners to sell their property or real or potential soil contamination ('Altlasten'). Moreover, most firms prefer virgin land without restrictions through adjacent land uses or existing infrastructure, ample expansion space and good highway access. However, environmental considerations and sometimes local citizen opposition prevent unlimited rezoning of agricultural land for industrial use.

To resolve this dilemma common to all cities in the Ruhr, the state government in 1982 set up a special fund for land acquisition, regeneration and resale ('Grundstücksfond Ruhr'). With money from this fund, Dortmund was able to purchase some 80 hectares of former industrial land which, after regeneration, has now been made available for new or relocated firms.

(4) Transportation policy

Although, as it was shown in Section 4, the Ruhr area was given an efficient regional transportation system in the 1960s and 1970s (Figure 13), there are still several improvements in the regional infrastructure necessary. All are controversial.

As mentioned earlier, some links of the regional motorway system were not completed because of local opposition. Two of these 'missing links' are located in Dortmund, leaving it with only one east-west motorway, the 'B 1' (which is not a real motorway as it has intersections), which is notoriously congested. Dortmund's industrial circles represented by the Chamber of Commerce have always insisted that at least one of the two 'missing links' must be built. However, under environ-

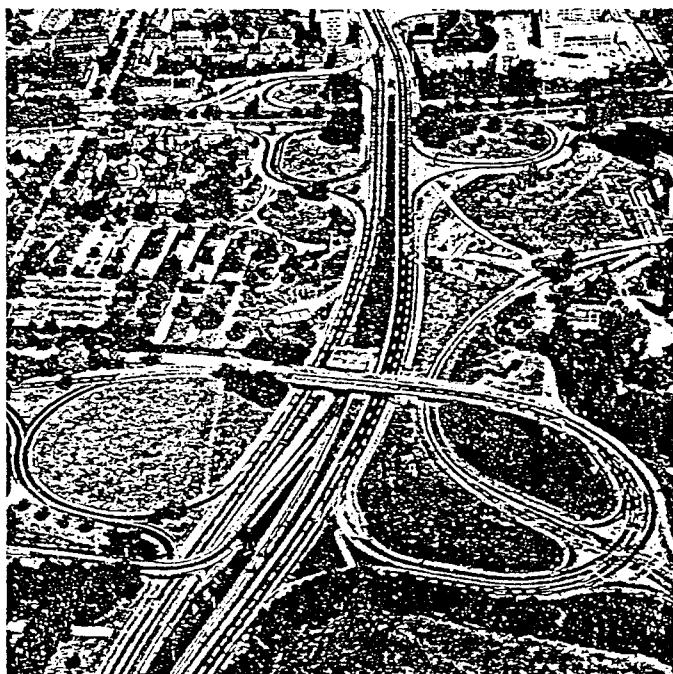


Figure 13. Dortmund has excellent autobahns, but there are 'missing links'.

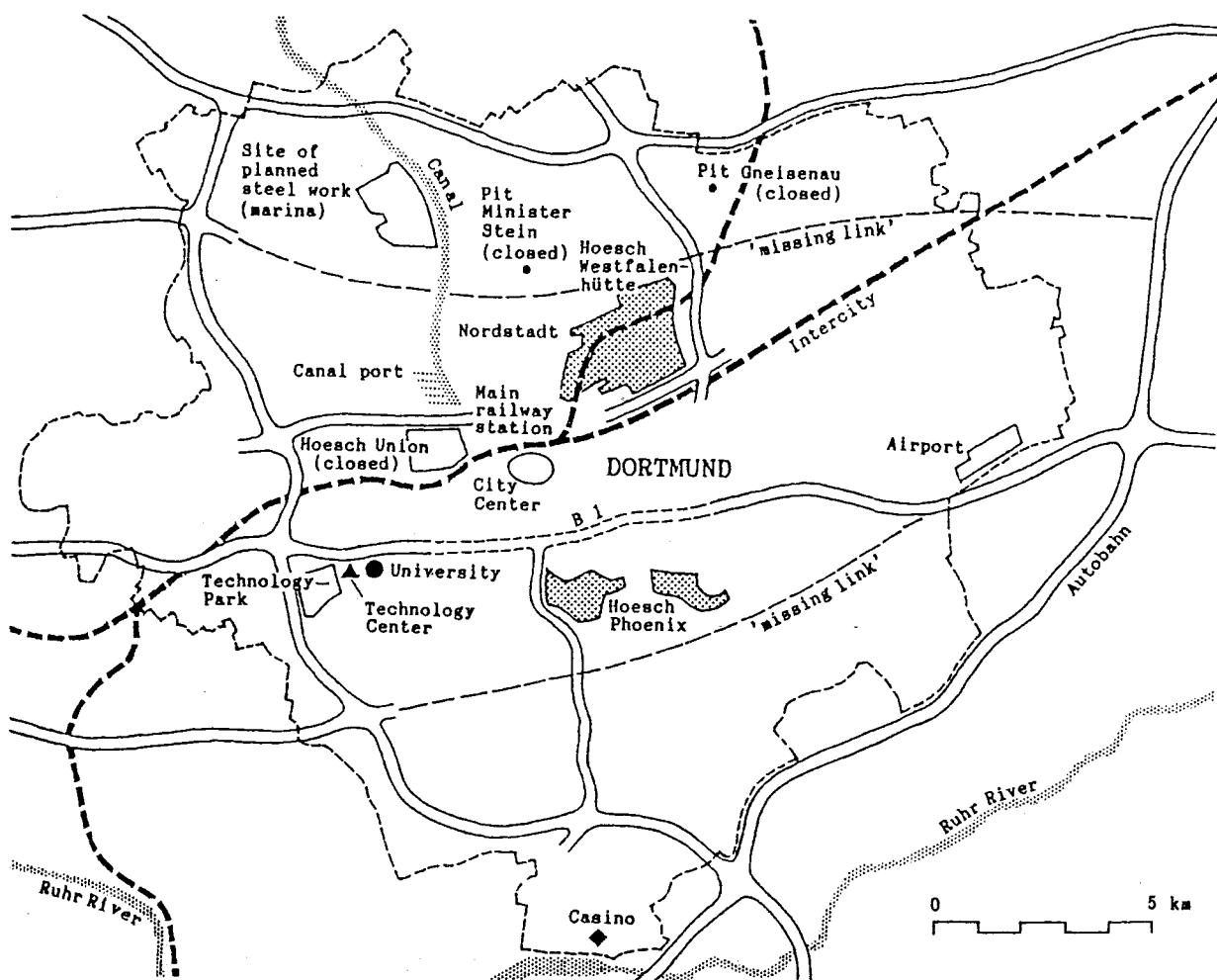


Figure 14. Dortmund: location of items mentioned in text.

mentalist pressure, the city has in the meantime rezoned the land set aside for that motorway and much of it has been already developed, so building the motorway today would require enormous sacrifices. Because of this, it is now being discussed whether a giant tunnel project under the existing B 1 could provide the necessary capacity (Figure 14).

A similar conflict of lesser scale arose when the Hoesch company demanded a motorway access to its major steel work *Westfalenhütte*. Against much citizen protest, this motorway has recently been completed. More ironic is the following case. When in the late 1970s Hoesch considered building a new steel work on a large site in the northwestern part of the city (Figure 14), it set as one of its conditions that a new link from the site to the southern autobahn be built by the city. Today the plan of the new steel work has long been abandoned, but the requested highway is almost finished.

The special relationship between the city and its still largest employer is further illustrated by the controversy about the modernization of the canal connecting Dortmund with the Rhine river and Dortmund's canal port (Figure 14). Hoesch has always insisted that the canal and the port must be deepened to accommodate the 3000-ton standard European barge, although today

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the firm ships only 8 percent of its total freight volume by water. Construction on the canal is now underway, but the company has so far declined to commit itself to shifting a larger share of its shipments to the canal.

It has always been a disadvantage of the Ruhr area that the nearest international airport is Düsseldorf, 60 km distant from Dortmund. In light of this, Dortmund has greatly benefited from the recent rise of regional air traffic. Dortmund's small airport (Figure 14) has now turbo-prop connections to München, Stuttgart, Nürnberg and Berlin, a flight to London is considered. One important factor of Dortmund's airport is its right to issue 'through-tickets' for connecting flights from München or Stuttgart giving long-distance passengers the feeder flight from Dortmund practically free.

However, the future of the airport is jeopardized by its unfortunate location in a densely populated area where citizens vehemently oppose any further expansion of its flight operations. Moreover, it remains open whether in a relatively small country like West Germany domestic air traffic has great prospects compared with future high-speed trains. Given Dortmund's excellent position in the Intercity network (Figure 17), even today only on long relations such as Dortmund-München significant time savings can be achieved by taking the airplane. With future systems such as the ICE or, possibly, the Maglev, these savings will be further reduced. Dortmund currently lobbies in Bonn for a new Intercity line linking it via Kassel to the new high-speed route Hamburg-München.

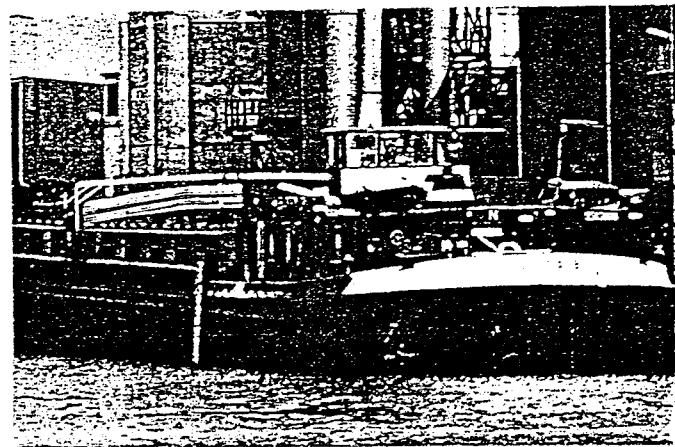


Figure 15. Dortmund's canal port: the largest in West Germany.

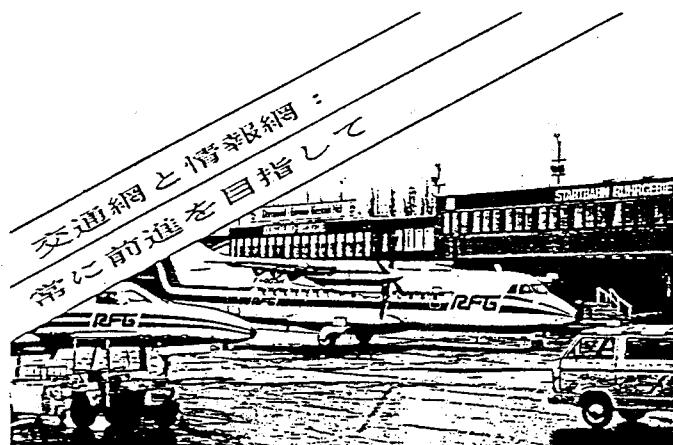


Figure 16. Dortmund's airport has flights to München, Stuttgart, Nürnberg and Berlin.



Figure 17. Future high-speed Intercity service (ICE) may be more attractive than domestic air travel.

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(5) Environmental policy

Many other activities can be summarized under this heading. They are not or not directly aimed at promoting economic development, but are part of a comprehensive long-term strategy of modernizing the region.

One set of policies is directed at restoring the natural environment from damages suffered during its industrial past wherever possible, by 'renaturalizing' streams or planting trees. One major project is the ecological model 'landscape park' planned to link the two parts of the university campus with the new technology park, actually eliminating ('retroconstructing') a four-lane highway built only twenty years ago. Another project is the large artificial lake and marina planned for the site where Hoesch is *not* going to build the new steel work (Figure 14).

Another set of policies is concerned with making the city safer and more convenient for pedestrians through various measures of traffic restraint. The city is in the process of thoroughly remodeling the downtown pedestrian shopping area in connection with a large underground parking garage and its new city hall. Similar smaller projects are underway for suburban shopping centers. In addition, traffic restraint measures for residential areas are implemented piece by piece. Traffic restraint in West Germany originally followed the Dutch '*woonerf*' example, but has since developed into a comprehensive philosophy of improving the living environment in residential neighborhoods. The city also plans to gradually increase the number of separate lanes for bicycles along trunk roads.

Neighborhood improvement, which is always closely related to traffic restraint, concentrates on the older worker housing areas close to industrial plants ('*Gemengelagen*') where the neighborhood quality is lowest. One notable example is the Nordstadt program directed at improving the living conditions in the Nordstadt, one of the oldest and most depressed districts in Dortmund.

6 OTHER CITIES' STRATEGIES

Dortmund is only one example. Everywhere in the Ruhr area cities new initiatives are springing up, as if the need to fight for survival had released a new wave of creativeness. Here is just a small sample:

- *Duisburg* has gone farther than any other city in exercising entrepreneurial thinking by privatizing its economic promotion department, which is now a semi-private company jointly held by the city and the two major firms of the city, Thyssen and Krupp.
- *Oberhausen* hopes that Canadian investors attracted by the 5 to 7 million consumers within a radius of 50 km will erect a huge covered shopping mall on the site of a former Thyssen steel work with 15,000 jobs, 1,500 shops, and 800 restaurants - much to the dismay of local retailers.
- *Bochum* has put its stakes on leisure and entertainment by heavily subsidizing investments like the *Aquadrom*, a fancy indoors pool, and the *Starlight Hall*, a theater built exclusively for the presentation of a London musical. On a more serious note, it hopes to become a center of the music industry in Germany.

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- *Hattingen* plans to transform its steel work Henrichshütte into a tourist attraction an industrial monument complete with museum, industrial park and historical steam-engine puffing along the Ruhr valley.
- *Dortmund* again deserves to be mentioned for its ingenious idea to secure one of the few state licenses for a gambling casino. The new Casino, much to the chagrin of local environmentalists located on one of the most scenic hills of the Ruhr valley (Figure 14), is an enormous success and highly profitable for the city through its share of the gambling tax.

Perhaps the most spectacular of all projects is the International Building Exhibition Emscher-Park ('IBA') launched in 1988 by the Nordrhein-Westfalen state government.

Despite its name it is not really an exhibition, but an ambitious program to fundamentally remodel an area, 35 km long and 10 km wide, on both sides of the Emscher river between Duisburg in the west and Dortmund in the east: a longitudinal section through the Ruhr area where its industrial legacy is most depressing, its environment most polluted, and its land-use system most disorganized (Figure 18).

Thirteen cities and one county are to cooperate to produce until 1990 a joint strategy for the development of the Emscher region under ecological, economic and social perspective for implementation in subsequent years. The state government hopes, with seed money of only DM3.5 million (¥245 million) to attract private investment of DM3 billion (¥210 billion) until 1994. Whether that is realistic or not may be open for debate. What counts is the forward-looking spirit expressed by this project, which encourages people to take a more optimistic view of the future of their region.

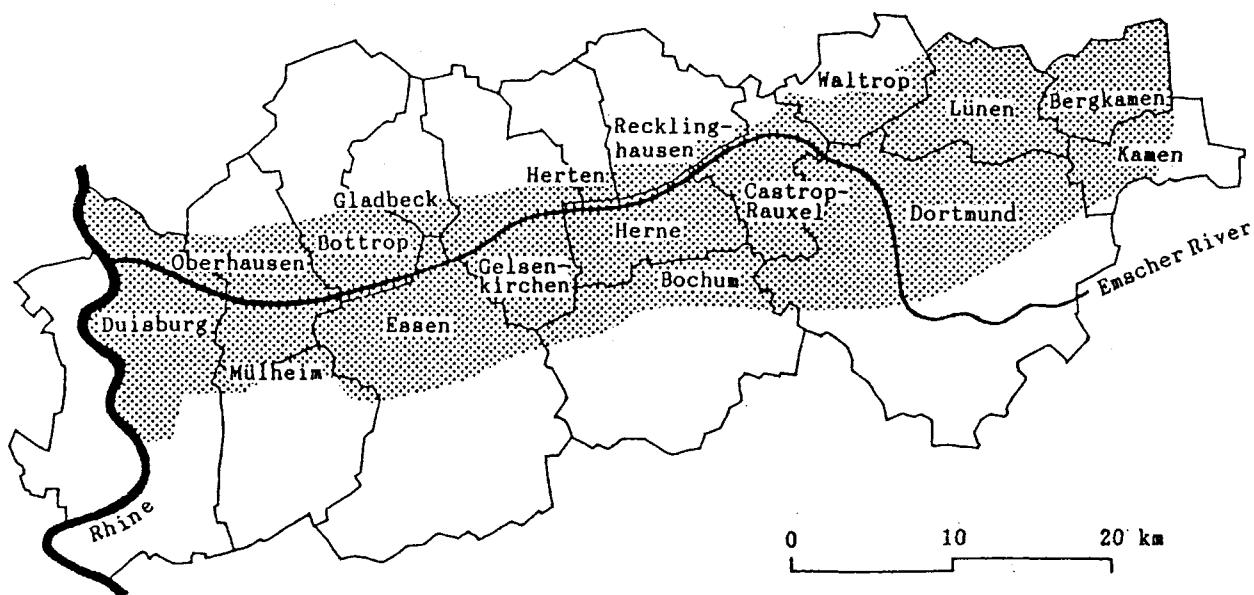


Figure 18. The International Building Exhibition Emscher-Park ('IBA') is an ambitious program to fundamentally remodel the Ruhr region where it is most desolate.

7 CONCLUSIONS

The economic indicators predict no bright future for the Ruhr area. The decline of the region's core industries, coal mining and steel making, has to be accepted as definite. However, Federal, state and local governments have actively responded to this challenge.

The first phase of policy response originated mostly from the Federal government, which provided the region with an excellent network of motorways and public transportation lines and a future-oriented system of higher education. In the more recent phase, the responsibility shifted down to local government. Most cities in the Ruhr area have responded in a flexible and innovative way to the new entrepreneurial challenges. They have developed a new style of urban management and planning and thus have transformed the traditional role of local government and created a fresh spirit of confidence and optimism. First steps into the restructuring of the region's economy away from coal and steel towards new technologies and products have been made.

With the shift of responsibility from Federal to local government, also the priorities and policy areas changed. This shift can be summarized as a move from 'hardware' to 'software' and can be illustrated by the changing role of transportation in the modernization process: In the 1960s, when the crisis started, the underdeveloped transportation infrastructure was a serious handicap for regional development. After this deficit had been removed by Federal subsidies for motorway construction and public transit, transportation appeared as a problem only with respect to individual bottlenecks or 'missing links', but gradually the negative environmental impacts of transportation became more important. Today the situation is almost reversed as traffic restraint measures or even removal of over-dimensioned roads is considered as being positive for the modernization of the region.

Yet, despite the signs of success, the region is still far from being on the road to economic recovery. Despite its excellent location and transportation system, its skilled workers and modern education system and its great improvements in environmental quality, the industrial heritage is still a heavy burden. For every new job created at the Ruhr, two are likely to be created in Stuttgart or München, as 'old' industrial regions like the Ruhr will for a long time remain the second best choice for locating firms. Maybe, the Ruhr cities should also see the good side of this. It gives them the time needed to carry out the thorough ecological and economic modernization they have now started in order to be fit for the next cycle of spatial restructuring when it is the turn of the winner cities of today to suffer the symptoms of economic decline (8).



Once this West European industrial region was known for its coal and steel mining. Today a far-reaching structural change has turned the Ruhr area into an industrial centre not only for traditional, but also increasingly for innovative enterprises.

Figure 19. The ICE trains are built in the Ruhr area.

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REFERENCES

1. Hay, D., Wegener, M. (1985): The Dortmund Region. Scandinavian Housing and Planning Research 2, 225-230.
2. Schönebeck, C., Wegener, M. (1985): Wirtschaftsentwicklung und Raumstruktur: Gesamtstädtische und kleinräumige Auswirkungen der Stahlkrise im Raum Dortmund (Economic Development and Spatial Structure - Regional and Local Impacts of the Steel Crisis in the Dortmund Region). In: Gryczan, W., Reutter, O., Brunn, E., Wegener, M., eds.: Zukünfte für alte Industrieregionen (Futures for Old Industrial Regions). Dortmunder Beiträge zur Raumplanung 38. Dortmund: Institute of Spatial Planning, 92-109 (in German).
3. Hennings, G., von Einem, E., Kahnert, R., Kunzmann, K.R. (1988): Möglichkeiten und Formen der Berücksichtigung und Eingliederung von gewerbepolitischen Förderstrategien in die Städtebaupolitik und Stadtentwicklung: Fallstudie Dortmund (Integration of Economic Promotion Strategies into Urban Policy and Development: Case Study Dortmund). Schriftenreihe Forschung 455. Bonn: Bundesminister für Raumordnung, Bauwesen und Städtebau (in German).
4. Kahnert, R. (1987): Altlasten und Siedlungsflächenentwicklung (Contaminated Land and Land Use Development). Working Paper 44. Dortmund: Institute of Spatial Planning, University of Dortmund (in German).
5. Wegener, M., Shibusaki, R. (1989): Urban and Regional Planning in Japan and West Germany: A Comparison. Tokyo: Department of Civil Engineering, University of Tokyo.
6. Duckworth, R.P., Simmons, J.M., McNulty, R.H. (1986): The Entrepreneurial American City. Washington, DC: Department of Housing and Urban Development.
7. Hennings, G., Kahnert, R., Kunzmann, K.R. (1987): Restructuring an Industrial City in Germany: The Case of Dortmund. Working Paper 42. Dortmund: Institute of Spatial Planning, University of Dortmund.
8. Wegener, M.: The Life Cycle of Industrial Cities: A Case Study of Dortmund, Germany. Working Paper 54. Dortmund: Institute of Spatial Planning, University of Dortmund.