

THE FUTURE OF INDUSTRIALISED CITIES AND REGIONS UNDERGOING STRUCTURAL CHANGES

Germany

**Country report
draft**

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Since the reunification in the year 1990, the Federal Republic of Germany has a population of over 80 million inhabitants. With a gross domestic product of 3.8 trillion DM, Germany is one of the greatest national economies of the world. The integration in world economy particularly characterises the economic situation: the proportion of exports and imports in the gross domestic product is at about 25%. Despite the "Economic Miracle" after World War II and the incessant economic strength of Germany, there are declining industrialised cities and regions with the known problems of high unemployment, low economic power, considerable pressure on the environment and specific deficits regarding social and cultural infrastructure. The way of tackling the structural change in Germany is shaped by the federal character of the German constitution with 16 states. Additionally to the Federation (Bund) and the states (Länder) there is a third constitutional level of administration: the about 14.000 communities which are selfgoverning bodies. Besides that the Integration of Germany into the European Union is of increasing importance.

In the following, the situation of industrialized cities and regions with structural problems in Germany will be outlined in the form of a short survey (Chapter 1). After that, specific problems of affected cities and regions will be analysed in detail (Chapter 2). This will be followed by an explanation of the reasons for the difficult situation (Chapter 3). Finally, the strategies applied to react to these problems will be described and discussed, a conclusion follows (Chapter 4).

1. Situation of Declining Industrial Cities and Regions in Germany

As the following map shows, the situation of industrialized cities and regions in Germany is characterised by the problems of rather sporadic cities and regions in Western Germany and extensive problems in Eastern Germany. As the situation in the unified Germany is very heterogeneous, the delimitation of industrial cities and regions requires a rather pragmatic approach. In the former West German states the map shows the objective 2 areas of the EU regional policy (declining industrial areas). Due to their low economic power compared to other EU regions, the former East German states are generally objective 1 areas of the EU regional policy (regions lagging behind in development). Since all cities and regions industrialized before the reunification were confronted with a dramatic structural change they now can be classified as industrial areas with structural problems. The map shows these cities and regions, distinguishing between industrialized and strong industrialized areas. The following sections deal with the development and the situation in Western and Eastern Germany. Then the future of cities and regions undergoing structural changes is discussed.

1.1. Development and Situation in Western Germany

The economic development of Western Germany after World War II had been initially able to carry on with the pre-war successes. Rapidly increasing wealth among the great majority of the population and unemployment rates of less than 2% characterised the "Economic Miracle". At the end of the Sixties and in the beginning of the Seventies (1st Oil Crisis), the growth rates began to decline. In combination with the increasing labour force, the unemployment rate continuously increased to a level of around 10%. This development was accompanied by continuous general structural changes: the portion of people employed in industry decreased, while the portion of people employed in the tertiary sector increased (cf. Ambrosius 1994, Schröter 2000).

However, the reduction of industrial jobs concentrated in some cities and regions, and balancing the situation by growth in the service sector did not succeed in all regions. This resulted in above-average unemployment rates of up to 20%. Here, particularly those regions were affected where the following specially declining branches of industry had been dominant: black coal mining, iron and steel production, ship building, textile and clothing industry.

As regards the extent of the problems, the formerly Europe-wide leading, densely populated and strongly urbanised coal-and-steel regions of the Ruhr District in the centre of North Rhine-Westphalia and the Saarland Region are by far in the first place (cf. map). The shipbuilding and harbour industry also was forced to shut down considerable capacities in traditional locations. This caused lasting problems e.g. in Bremen, Bremerhaven and Kiel. The significant reduction of jobs in the leather, textile and clothing industries had a particular impact on regions such as the sparsely populated West-Münsterland Region in the southwest of lower saxony or the area surrounding the northern Bavarian textile city of Hof.

The environmental situation in today's industrial regions of Western Germany was alarming up until the Sixties, since smoking chimneys used to be considered a symbol of progress and wealth. This only changed when the "Environmental Programme of the Federal Government" in 1971 declared the protection of the environment to be a task of high political priority. This led to retrofitting old production plants, so that air and water quality could considerably be improved. Finally, shutting-down of numerous plants due to economic reasons resulted in a "passive remediation" of air and water. While air and water pollution continuously declined in the past decades, the remediation of the partly intensely contaminated soil was started rather hesitantly and was particularly limited to shut-down factory areas. A legal basis regulating the precautionary dealing with soil was finally established with the Federal Soil Protection Law in 1998. As regards the impairment of the quality of life in the Western-German industrial regions, environmental pollution does no longer play a considerable role.

The urban features of industrial settlements do not always fulfil the standards of today, having their share in a lower quality of life: Residential areas are lacking green spaces, housing quality is often poor and the industrial works in the neighbourhood are a source of pollution. Together with the social consequences of unemployment (segregation, neglect of public property, rising criminality), the image of those quarters, even of the whole region is rather bad. Although much has been done in the past, the residential quarters of industrial settlements which have been built in the period of rapid expansion are not favourite places if one would choose freely.

1.2. Development and Situation in Eastern Germany

While individual branches particularly lost importance in Western Germany within a longer period of time, all branches were negatively affected in a historically unprecedented way by the transformation of Eastern Germany after the reunification within an extremely short period of time. Industrial employment drastically went down from approx. 3,5 million people in the year before the reunification to just under 730,000 people in August 1993. In mid 1993, the Eastern German industry contributed only 3 – 5% to the overall German industrial production (Fischer 1994), which can be considered as a "structural break" and "deindustrialisation" (for example, acc. to Scholz 1994, 9). The population of the former East German states decreased from 16.6 Million in 1989 to 15.2 Million in 1999 (Federal Statistical Office 2000).

While unemployment did not exist until 1989, the unemployment rate of Eastern Germany reached 15% to over 25%. Although industry broke down almost everywhere, there are still spatial concentrations of industry. Particularly Saxony, Thuringia and the south of Saxony-Anhalt were industrialised, but also several cities and regions in Brandenburg and some in Mecklenburg-Western Pomerania (cf. Schmidt / Banse / Wirth 1992, 2 and Häußermann 1992, 10).

With regard to the affected branches and their regional concentration, the following problem areas have to be considered. First to be mentioned are the regions around Leipzig (Leipzig Lowlands) and the area around Cottbus (Lower Lusatia), which used to be specialised in lignite mining, lignite processing energy production. Around these energy and raw material sources the broken-down centres of chemical industry can be found, for example, within the triangle of Halle-Leipzig-Dessau. Another important branch of mining was uranium ore mining in the south of Thuringia and in the southwest of Saxony which had been carried out by a Soviet-German joint venture under military maintenance of secrecy and without a remediation concept. Steel industry, which was forced to shrink to a great extent, was concentrated e.g. in the towns of Brandenburg, Eisenhüttenstadt and Riesa. Locations of shipbuilding and harbour industry in northern Mecklenburg-West Pomerania had to face considerable employment reductions. The textile and clothing industry disappeared almost completely down to only very few production facilities predominantly located in Western Saxony (Kulke 1988, 428). Considerable adaptation problems also occurred with heavy machinery construction in Magdeburg, automobile and machine construction in the Chemnitz region. By now, few regions have managed to continue their industrial traditions with the help of new modern production facilities. Here, for example, emphasis is to be put on optics and precision mechanics in Jena, microelectronics in Dresden and the chemical industry in the region Leipzig-Halle.

Ecology in most industrial and mining regions of East Germany was heavily damaged by 1989. With the reunification, the West-German environmental legislation was taken over, the last transitional terms expired at the end of 1999. Due to the closure of numerous production plants and the parallel erection of modern production lines, an improvement of the air and water quality was achieved very quickly (Hentrich et al. 2000). Great progress was achieved in soil remediation; however, the end is yet out of sight. Particularly the recultivation of the shut-down lignite and uranium ore mines will take a long time.

For the urban structure of industrial settlements in Eastern Germany, the same deficiencies which have been named for Western Germany can be underlined. They are aggravated by the socialist housing policy which favoured housing in slab construction, deliberately neglecting pre-war housing. In contrast to Western Germany, some new industrial centers were created by political decision, placing great factories and huge residential areas at the fringe of small rural towns or even villages.

1.3 Future Development

The future development of the industrialised cities and regions with structural problems is hard to forecast. As regards economy, it can be assumed that neither in Western Germany nor in Eastern Germany a quick solution of the problems can be expected. Depending on the given preconditions in terms of location factors, some of the affected cities and regions might well develop in a positive direction. However, it is to be expected that an adaptation of the economic development will be nearly impossible even in spite of the support provided through balance-oriented politics. Generally the structural change will become even faster due to the continuing globalisation and the enlargement of the European Union (Schumpf 1995, 116). Possibly there will emerge new regions of industrial decline. In the mid 90ies the fear was discussed if this could happen to the regions of car industry in Baden-Württemberg.

Concerning the environmental situation and the quality of life in the industrialised regions, it is to be mentioned that air and water quality has usually been improving automatically due to the elimination of the dominating industries. Other environmental problems, such as soil pollution and landscape damage, can only be solved in the long-term. Under the precondition that financial aid will further be available, the solution of these problems is relatively sure. In contrast, the improvement of the provision of social and cultural infrastructure depends on the public financial situation and, consequentially, the development of local and regional economy.

One problem is that, due to the general economic situation and the grown tasks regarding the compensation of disparities between different regions in Germany, the funds available for the adjustment policy are tendentially declining. From that results the challenge to use these funds more efficiently and purposefully for supporting the structural change in industrialised cities and regions.

2. Special Problems of Industrialized Cities and Regions in Germany Undergoing Structural Change

Industrialised cities and regions in structural change are facing challenges of a very complex nature. In the following, the two strongly interconnected problem fields economy and employment as well as environment and quality of life will be considered in detail. Due to their great importance, the examples of the Ruhr District and Eastern Germany will be in the foreground.

2.1. Economy and Employment

The development of economy and employment in the conurbation Ruhr District with its about 5 Million inhabitants has been characterised by a more or less continuous above-average decline in industrial employment particularly in the mining and steel production sector since the Sixties and Seventies. The two mentioned sectors alone lost 500,000 Jobs (Wienert 2000, 28). Since this could not be compensated by a sufficient increase in jobs in other branches of the industry and the tertiary sector, unemployment rates rose at the same time. It is to be taken into account that development has indeed been different in individual cities, however, all are confronted with the above-average unemployment rates.

In contrast to Western Germany, in Eastern Germany not only all branches evenly got under pressure as regards adaptation due to the transformation from planned economy to market economy. Also, the reduction of jobs happened much faster. That way, Eastern Germany became an almost deindustrialised area within an extremely short period of time. The number of employees liable to contribute to social security went down by more than one third altogether (cf. Table 1). It is to be mentioned that the high figure of unemployment in comparison to Western Germany has its reason also in a still much higher labour-force participation rate.

Table 1: Employment and unemployment in Western and Eastern Germany

	Employees liable to contribute to social security (% of inhabitants)		Labour-force participation rate		Unemployment rate
	Development 1990-98	1998	1989	1998	1998
Eastern Germany	-36.8%	33.6%	75%	53.3%	18.2%
Western Germany	-1.2%	33.0%	50%	48.1%	9.8%

Source: BBR 1999; Employment rate 1989: BMBau 1991, Employment rate 1998: Federal Statistical Office 1999; Labour-force = Gainfully employed persons + unemployed persons
 Labour-force participation rate = proportion of the population of working age who are in work or unemployed
 Unemployment rate = proportion of the labour-force who are unemployed

The unprecedented reduction of jobs was cushioned by way of numerous socio-, job market- and economic-political measures. Among other things, this is a reason why 2.36 million persons had lost their jobs in Eastern Germany until 1998, but only 1.38 million people were reported unemployed (DIW 1999a). The unemployment rate was about 18% and, thereby, it was almost twice as high as in the western part of the country. The breakdown of industrial employment after 1993/1994 was then followed by an increase which resulted from the implementation of a strong support of the economy: From impressing 132,5 industrial employees per 1000 inhabitants in January 1991, the figures for Eastern Germany plunged down to 46,5 three years later; in June 1997, they had risen to 73,0 which still is far below the Western German average of slightly more than 100 (Nolte / Ziegler 1994; statistical offices of the federal government and the federal states)

In spite of the well-established redistribution of wealth, numerous industrialised regions with structural problems – both in Eastern and Western Germany – are characterised by lower average budget income which is, among other things, due to the high unemployment rates. From the unemployed reported in 1998, as little as 82.2% received unemployment benefits which amounted to 53-67% of the last net income (Federal Statistical Office 1999). Additionally, in Eastern Germany the gross monthly income in the manufacturing industry is at only 75% of the same in Western Germany. However, the overall economic productivity has only reached about 60% of the Western German level so far (DIW 1999a).

Of great importance regarding the economic situation in Eastern Germany is the state of privatisation of the approximately 8,500 formerly state-owned enterprises. Until 1994, almost 100% of the enterprises, parts of enterprises, factories and other objects of property could be privatised, reprivatised, communalised or put into liquidation (Treuhandanstalt 1994). In this respect it is important to draw the attention to the fact that most enterprises and factories were bought by Western-German or foreign companies. This distribution of property and control rights might turn out to become a problem for Eastern Germany in the long term. In this context, the known difficulties with the branch establishments (lack of headquarters as well of research and development) will probably play a more important role than those of the efflux of investment income. Serious problems to follow could also arise due to the migration wave of young and qualified employees to Western Germany as a result of the economic situation. Together with the decrease in births caused by the insecurities of the period of change, a demographic development is to be expected which can become an extreme burden to the economic location and the public budgets.

2.2 Environment and Quality of Life

Environmental problems in traditional industrialised regions are caused by the massive human intervention in flora and fauna, soil, ground and surface waters, air quality and climate. From an urbanistic and aesthetic point of view, this is accompanied by considerable changes of settlement structure and the landscape. What is more, the quality of life is impaired by the cutback of social and cultural infrastructure as a consequence of economic problems and demographic changes. The bad image of the affected cities and regions which is the consequence may last on for a long time.

Particularly in mining and chemical regions, **air and water quality** was heavily impaired at the beginning of the structural change, i.e. in West Germany until around 1970 and in East Germany until 1990. By now, the loads on air and waters have almost everywhere been reduced to an environmentally compatible and healthy extent. However, the water pumping in mining regions causes a significant impact on the entire **water balance**.

As an example, the ground water level in the open-cast mining area of Lower Lusatia was lowered by up to 80 m below the original level on approx. 2500 km², which considerably affected agricultural and forestry utilisation and the biotope situation. For balancing the ground water deficits after the shutdown of mines, large amounts of water are required which, due to the amount and the quality, cannot be covered by the reflowing ground water and partly need to be supplied via pipelines (Georgi 1994, 350).

Soil pollutions on old industrial sites are partly very serious despite indisputable success. The Department of the Environment lists nearly 200,000 sites of suspicion for december 1998; of these, roughly 10-20% will have to be remediated which is a costly and time-consuming process (UBA 2000a). A special case of material environmental impact is the radiological contamination of the old sites of uranium ore mining in the southern parts of Thuringia and Saxony.

The **landscape** of almost all industrialised regions has also been changed to a great extent. Often, goods traffic railways, pipelines, high tension lines, freight harbours and more oppose possible reutilisation (recreation, living, commerce). Under the new economic framework conditions, the specialised infrastructure seems to be over-dimensioned and unnecessary. In mining regions, the landscape is additionally seriously impaired by numerous overburden heaps and abandoned pits; any reutilisation of the areas is difficult. This particularly holds true for lignite mining regions.

For example, in the mining district of Lower Lusatia a total area of approx. 800 km² has been devastated; the special mining technology has led to the development of large areas that are not cultivable, and the hazard potential of unsecured slopes is very high.

Furthermore, the traditional industry often had a particular impact on **settlement structures**. Grown districts were partly destroyed, partly the cities accidentally grew around mines or factories as this was repeatedly documented in the Ruhr District. Industrial wasteland often is situated near the town centre, and needs to be revitalised and integrated into the town. The cultural pre-industrial heritage (if there is one) has seriously been damaged as a result of decades of pollution of the environment, in mining regions also because of excavation and mine lowering. In cases where industry led to a rapid growth of population, as e.g. in Oberhausen / Ruhr District, Eisenhüttenstadt or Lauchhammer in Eastern Germany, the settlement structure has most deficits: Towns may be lacking a well-defined centre with outstanding buildings, housing quality as well as quantity and quality of urban green may be low.

In GDR, a certain compensation for environmental damage in industrial regions was provided by way of comparatively high wages, by the quality of living in "new buildings" (i.e. in blocks of flats) as well as by further privileges for workers in industry and mining. After reunification, formerly popular flats in slab construction are considered less attractive in view of the available alternatives, even though most of these flats have been modernised.

As a positive effect of industrial history, workshop halls and facilities from early industrialisation are already now considered historical monuments ("cathedrals of the industrial epoch"), particularly when they are designed in a representative style. They are in danger of being demolished when economic activities cease.

Another factor contributing to the low quality of life in some regions with structural problems is closely connected with the decline of population and the lower municipal budgets: **Public facilities** such as swimming pools, cultural facilities or kindergartens may close or become more expensive. This trend is particularly intense in the Eastern German cities and regions where in GDR times there was a very good social and cultural infrastructure (public "house of culture", numerous orchestras and theatres etc.).

In areas with strong migration rates, empty flats, decay and social segregation processes are perceived as social disgrace. The actual or assumed bad environmental situation, the technogenous landscape and possibly existing social problems in many regions is reflected in a correspondingly **bad image**. Even though air and water pollution have been decreasing for years and great success has been achieved with soil remediation, the bad image can have negative consequences as regards investments and tourism for many years.

3. Reasons for the Decline of Industrialized Cities and Regions

3.1 Economy and Employment

Analysing the reasons for the decline of industry in certain cities and regions, it has to be differentiated between the changed framework conditions on the one hand and the local and/or regional adaptation

problems on the other. While the framework conditions have changed in Western and Eastern Germany in very different ways, the presently existing adaptation problems may be compared.

The framework conditions in Western Germany relatively continuously changed after World War II. After the fundamental decision in favour of social market economy and gradual liberalization of trade, the competition for domestic producers increased accordingly. Particularly those branches were affected which manufactured products at a relatively low technical and very labour-intensive level. For example, coal mining industry, textile and steel industries lost market shares to the so-called low-wage countries. Additionally, the demand for certain products went down due to technological reasons; this affected again the coal mining industry and the production of simple steel grades.

With the hardly dropping wage level, not all affected enterprises and factories were able to remain competitive through product innovations or rationalisation. This circumstance resulted in closures. In case of a successful reduction of labour cost by way of rationalisation, only a part of the previous staff could be further employed. Due to the spatial concentration of those branches affected by the crisis, also resulting problems like unemployment and low local and regional financial power concentrate in the mentioned cities and regions. (regionaler Faktor?)

In contrast to Western Germany, the framework conditions in Eastern Germany changed by far more massive and within a considerably shorter period of time. The pressure to adapt exhibited absolutely different dimensions. There was less than one year between the opening of the wall which divided the two separated states (November 1989) and the reunification of the so-called five "new" federal states and the Eastern part of Berlin with the Federal Republic of Germany (October 1990).

With the currency, economic and social union (July 1990) and the reunification, the complete economic and legal system as well as social welfare matters was applied to the former GDR. Looking back, the currency conversion of the Mark (East) into DM (West), whereby the wages and salaries were adjusted at a 1:1 rate, is considered problematic (DIW, IWH). Since the adjustment of the low productivity of the Eastern German economy to the increased wages was impossible, the factories were hardly able to produce in a profitable way. Moreover, the conversion of the debts of the former GDR-enterprises is considered problematic as well: Although loans had an entirely different function in the GDR than in countries with free market economy and the enterprises were neither able to independently raise loans nor to use those for investments, the enterprises remained burdened with it in their profitability after 1990.

Above that, the way property relations were treated turned out to be an impediment to investments. Unlawfully expropriated manufacturing facilities and other real estates were treated according to the principle „return above compensation“. That way, unclear property relations led to delays of investments. A further negative aspect was that the domestic demand broke down in favour of the goods produced in Western Germany and / or Western Europe. Additionally, the demand from the until then predominant markets in the formerly socialist countries went down as well. The result was not a second, hoped for "Economic Miracle", but a painful and not yet overcome structural breakdown.

The described framework conditions in western and eastern Germany such as integration in world economy and reunification are decisive reasons for the problems of industrialised cities and regions. However, they are not strategy-relevant since they have to be considered as unchangeable. Therefore, the further-reaching reasons have to be found why the branches affected by structural changes did not turn out to be sufficiently competitive or why the loss of jobs was not compensated by new jobs.

As a reason for the slow adaptation to structural change the entrepreneurial potential of a town or region may be considered first. While in the Ruhr District it is said that the entrepreneurs and / or managers have been concentrating on coal and steel for too long (Grabher, Häußermann?) in Eastern Germany there was almost no entrepreneurial tradition. The principles of market economy and management (especially financing and marketing) were largely unknown and had to be learned first. In this respect, there are certainly still problems today.

Regarding the factors of establishing new enterprises and the growth of already existing enterprises, it is secondly to mention that in spite of large unused industrial wastelands there is a lack of developed operationally utilisable areas. The reasons for that are actual or suspected old deposits, unclear property relations, no longer utilisable infrastructure and buildings as well as the absence of any demand which makes the preparation of the areas for future utilisation seem to be little worthwhile. In the Ruhr District, the so-called "blockage of land" worsened the situation: The old-established enterprises owned the largest part of the possible areas and refused to sell. A similar effect, at least temporarily,

had the insecurities regarding the property relations in Eastern Germany. By now, a lack of areas should no longer play a decisive role.

Thirdly, traditional industrialized cities and regions usually have an infrastructure which was designed for the traditional branches, providing bulk goods transportation facilities such as ports, railway systems and pipelines. It does not fulfil the requirements necessary for flexible production structures (e.g. deliveries just in time). Eastern Germany still needs another 10 years to catch up on the infrastructure of western Germany (Gutachten für Solidarpakt I).

A fourth important aspect is the availability of labour in quantitative and qualitative respect. Often, the problem is that the available workers have a no longer adequate or no professional training at all. Selective migration, like in the new states, can even aggravate this problem. As regards labour cost, the Ruhr District was said to be a high-wage region with a good organisation in terms of labour union for a long time which is rather disadvantageous from an entrepreneurial point of view. The eastern German labour was compared to the low productivity much to expensive.

In this connection, the availability of educational facilities is to be mentioned. It depends on their capacity in how far new qualified people can be made available. Educational possibilities in industrial regions used to be rather specialized, but significant shortages have been eliminated by now.

In contrast, soft location factors as a fifth aspect like, for example, environmental and landscape qualities as well as cultural offers gain more and more importance. They characterise the image of a town or region and are important to the decision of managers and people from creative professions in favour of a certain site. Especially the Ruhr area and large parts of eastern Germany still have deficits in this respect.

Sixthly, also the engagement of the local politicians and administration as regards economic matters plays an important role concerning the economic development. Here, it is of particular interest in how far the structural change is delayed or promoted. Especially in the case of the Ruhr District a structure-preserving attitude is found which has resulted in a delay of the problems.

Aside from these soft site factors, seventhly more and more „ultra-soft“ location factors are identified (Butzin). Part of these is the innovation-oriented co-operation between the most different protagonists from economy, science and politics. The basis of the co-operation are networks. Also through the attitude of the protagonists regarding co-operation and innovation, a certain local or regional milieu develops which, as regards the Ruhr District, is considered to be non-innovative by some authors (Grabher ...). In Eastern Germany, many old networks have broken down due to changes, and new regional networks had to reform first. This has been made difficult by lacking experience and integration of newly established companies into nation-wide co-operation, control and economic relations. Since classical production factors individually rarely constitute decisive problems any longer, the exploitation of network and co-operation potentials and „creative milieus“ carries great importance. They constitute a central endogenous potential which can activate the other material endogenous potentials.

Especially regarding the necessity of integrating different measures on local and regional levels and in the light of special challenges of industrialized cities and regions, the engagement and expertise of the local protagonists is absolutely necessary. Their participation in the formulation of development objectives and the granting of financial aid increases the motivation of the protagonists and the acceptance of measures.

3.2 Environment and Quality of Life

The reason for environmental damage in industrial regions with structural problems is not due to the economic breakdown – as for many other problems – but is, on the contrary, the immediate consequence of production. As it was already described, industry in West Germany produced without effective environment regulation until the Seventies, whereas East Germany continued its polluting way of production with outdated technique until 1989/90. The strong spatial concentration of the particularly burdening branches of coal, steel and chemical industry made the respective regions centres of environmental pollution.

The material emissions differ from branch to branch. Although generalisation is problematic, considering the large number of emitted substances, the most important sources of pollution are:

- Combustion processes in energy and industry which caused massive and far-reaching air pollution with sulphur oxides, nitrogen oxides and dust.

- In regions with coal and steel industry, the air quality was additionally seriously impaired by hydrocarbons from coking plants and exhaust gases from blast furnaces, accompanied by deep-reaching soil pollution due to hydrocarbons.
- Chemical and textile industry emitted a large number of substances into the environment. Particularly heavy metals and some persistent organic by-products still constitute a problem even decades after production was stopped.
- Following the objective of autarchy, the entire energy and raw material industry in the GDR was to a great extent based on technical processes and plants from pre-war times. The use of lignite as the only energy source and the hazardous system of waste treatment caused high emissions of pollutants
- Metal industry in GDR was based on resources which were low concentrated, having high energy demands and great overburdens as a consequence (SRU 1995, Tz. 532-561).

The reutilisation of industrial wasteland is problematic, mainly due to the high costs. According to Börner (1996), remediation costs of an average of 1 million DM per hectare were spent for the 1600 hectares which were bought by the land and treated in the scope of the real estate funds North Rhine-Westphalia between 1980 and 1997.

Following the "polluter pays" principle is not always possible since many companies have ceased to exist in the course of structural change (especially in Eastern Germany), leaving the task of remediation to the buyer or the public authorities who are not able or willing to raise the required funds. This economic aspect is pointed out by Henckel (1986, 66): Caused by the high real property prices in economically attractive regions the "wastelands practically do not constitute a problem" there, with private enterprises buying and using the areas. In contrast, "in old industrialised or peripheral regions which lost their attractiveness for new types of industries (...) the old contaminations from the past – in the broadest sense – often need to be removed involving high public expenditure." Therefore, often several years go by after the shutting-down of a factory until the area becomes available for reutilization (Tettinger / Mann 1994; SRU 1995, Tz. 260).

Aside from existing or suspected contaminations, the reutilization of brownfields is difficult, due to their location in the immediate vicinity of residential buildings, their spatial features as well as to the long period of time between closure and reutilization. The mixture of industrial and residential utilisation which is typical for traditional industrialised regions impedes the development of modern business locations and attractive residential areas, due to modern immission regulations.

The deplorable state of settlement structure was favoured in Western Germany by the absence of an effective law for urban planning until post-war times. Big trusts had often built works settlements in the immediate neighbourhood of the production facilities, partly having a low quality in terms of construction and design (garden suburbs may be considered an exception here). In the GDR, additionally, financial and material resources for maintaining the infrastructure were scarce. Accordingly, technical and constructional infrastructure was generally in a bad condition, and in particular inner cities were seriously decayed in 1990. This was intensified by the prevailing housing policy, aiming at the construction of great mono-functional residential areas in slab construction and intentionally neglecting those existing old buildings which had got into public hands after expropriation. By now, the worst damage has been removed.

Furthermore, existing and no longer needed buildings and infrastructure constitute a special problem. Mostly, they were built for a specific purpose and may only be adapted to new types of utilisation and changed requirements with high expenditures. Partly, the owners of the buildings cannot be determined anymore.

Owing to all these factors, decisions between an investment on brownfields and on the "green meadow" are often made in favour of the latter. While in the Ruhr District the people started relatively early to reutilise old areas, in Eastern Germany there was initially a strong trend to build industrial, business and residential areas in the suburban space.

In general, the pollution of the environment and the deficits in settlement structure in both parts of Germany have led to considerable problems regarding the so-called soft location factors even before economic problems came up. These problems are now considerably intensified by social problems, selective migration and the weakened financial situation in the communities (ARL 1999): Less money is left for public tasks such as maintenance of technical, social and cultural infrastructure, but also for the development of new qualities (urban green etc.).

4. Strategies for the Development of Industrialized Cities and Regions with structural problems

The previous chapters have revealed that it has been quite a challenge to master the structural change in industrialized cities and regions of Germany for quite a long time. The first section of this chapter will briefly describe the development objectives which were formulated for these cities and regions. Development strategies for industrial cities and regions in decline can be classified in different ways. Since the institutional framework of politics and policy is very important in the following the strategies are structured regarding to the different political-administrative levels which are relevant in Germany. Beginning at the top in the second section the strategies of the EU, the federal government and the states are described. The additional level of the regions and the one of the towns is explained in the third section. The strategies reflect the competences of the different levels and are highly inter-dependent. The chapter will end with a conclusion.

4.1 Development Objectives

A number of development objectives have been set up in Germany and are subject to certain changes in the course of time – in the same way as the strategies. Nevertheless, the following main goals have always played an important role again and again although their importance differs. Firstly, the existing jobs have to be safeguarded in economic respect; this means that companies hit by a crisis are to be stabilised directly and indirectly. Secondly, new jobs are to be created in “future branches” of industry or other sectors, such as the service sector in order to offer employment perspectives to younger employees in particular. Thirdly, socially compatible solutions are necessary for those people who have been dismissed and have only very little chances on the labour market, e.g. due to their age. Beyond these directly economic objectives, a stronger focus has to be laid on the environmental situation and the general quality of life because there are major deficits in most industrialized cities and regions.

The social and regional planning objective of creating equivalent living conditions in all partial regions of Germany is a significant background of the efforts directed to stabilising industrialised cities and regions with structural problems. This target has constitutional rank and is laid down in the Regional Planning Act. The general idea includes a sustainable regional development “harmonising social and economic demands in the region with its ecological functions and resulting in a permanent, balanced order on a large scale” (§1).

4.2 Development Strategies

Apart from an institutionally oriented classification by the five relevant political-administrative levels formulating and pursuing strategies, development strategies can be classified on the basis of two further aspects. Firstly, it is to be differentiated on the basis of the strategic objective, whether companies, infrastructure, environmental remediation or wider contents are to be promoted. Secondly, the role played by the cities and regions in setting up and implementing the development strategies is to be questioned (Top-down- and Bottom-up-approach, respectively).

4.2.1 European Union, Federal Government and Länder

Within the framework of regional policy pursued by the European Union, financial means of the European structural funds were provided for industrialized cities and regions eligible under two objectives of the EU regional policy. In western Germany cities and regions were supported as “industrial regions seriously affected by industrial decline” For these German objective-2-areas, 1.56 billion ecu were available in the programme period from 1994 to 1999. A relatively wide range of measures is co-financed, such as infrastructure and education up to the promotion of environmental protection. The provision of the structural funds requires setting up regional development programmes. This needs a certain bottom-up-agreement of projects in a region. A minor part of structural funds has been concentrated on community initiatives. For the structural change of industrialised regions, the initiatives Retex (textile regions), Rechar (coal regions) and Resider (steel regions) of the last programme period are to be emphasised.

Following reunification, all regions in the five new Länder have become eligible under objective 1, together with peripheral regions such as Portugal, Greece and Southern Italy ("regions lagging behind development"). This is linked with the broadest possibilities of using the appropriated money and the highest award rate. For these German objective-1-areas, considerable 13.64 billion ecu were available in the programme period from 1994 to 1999. For the programme period from 2000 to 2006, some changes have been made in the EU regional policy which are referring especially to western Germany. The total area which is eligible under the objective 2 has decreased (?). The mentioned community initiatives have been cancelled. Within the field of environmental protection measures, there is only the LIFE-programme promoting pilot- and demonstration projects of technical environmental protection on EU-level.

The Federal Government supports EU regional policy by involvement in the formulation of the policy and by co-financing the measures. For its additional regional effective policy the Federation - and the states - do not delimitate (?) another special area of industrialized cities and regions. Nevertheless these cities and regions are additionally supported by various federal programmes. Firstly, a part of the sectoral structural policy of the federation supports the industrial problem areas. This holds true especially for the subsidy policy for the mining industry. Steel industry and shipbuilding have been subsidised as well, at least temporarily.

Secondly the regional structural policy is concerned. The Federal Lands are basically responsible for this policy, but the Federal Government participates within the framework of the joint task "Improvement of regional economic structure" (Gemeinschaftsaufgabe "Verbesserung der regionalen Wirtschaftsstruktur". This programme supports all regions which lag behind in growth and unemployment by subsidising commercial and public investments, including economy-oriented revitalisation of industry and enterprise zones as well as setting up regional development concepts. Measures that are part of this development concept are to be promoted with priority. The money can be used to co-finance the EU policy projects.

Thirdly, on local and regional level, federal structural policy and federal labour market policy are often interlaced. Within the framework of labour market policy, it is provided that unemployed find an employment in the so-called second labour market or take part in advanced training courses (for example on the basis of job-creating measures, employment associations). Including the payment of earning-related benefits the support e.g. in eastern Germany amounts to 340 billion DM in the period of 1991-1998 (Raumordnungsbericht 2000). This is the highest contribution of a single policy to the recovering of the eastern states. Fourthly the redistribution of income from the federation and "rich" states to the states which have inadequate financial resources plays an important role. These fiscal transfers help e.g. the states of the Saarland and Bremen to be able to fulfil their tasks. For the new states these fiscal transfers which amount to 250 billion DM are the second important influx of money.

The federal government has a special responsibility towards eastern Germany. As shown the new states profit above-average from general federal policies. But the new Länder are supported by various special instruments. Firstly there is a program for large-scale traffic projects in the new Länder. Secondly, in the field of company-related investment promotion, special investment subsidies and grants as well as the possibility of tax incentives are provided. Thirdly, but not least, the sites for several authorities, training and research institutions have been chosen in favour of the new Länder.

Fourthly, apart from these measures, industrialised cities and regions gained great benefits from the activities of the privatization agency (Treuhand) which privatised, restored to profitability or liquidated more than 12,000 former GDR-enterprises with high financial means. In line with the incorporation of Eastern Germany into annuity, health and unemployment insurance, there was a high transfer into the new Länder which was a particular benefit to the regions with high shares of unemployed and early pensioners.

From the view of regional politics and regional planning, there are two further new instruments of the Federal Government which are worth mentioning. On the one hand, the programme InnoRegio promotes innovative regional co-operation, in particular in the new Länder within the framework of research and technology promotion. On the other hand, there are model projects of federal regional planning that are also applicable to Eastern Germany, such as "rehabilitation and development" and "Towns and Regions of the Future" serving for promoting co-operation of many relevant participants.

As far as the aspect of environment and quality of life is concerned, it has to be emphasised that the Federal Government and Land co-operate very closely in financial respect. In particular, this refers to brownfield redevelopment, remediation of environmental contaminations as well as mine remediation and urban development.

The instruments of urban development in Germany are well differentiated. Since 1971, regulations determine the distribution of funds from the federal government and the Länder for urban development in municipalities (cf. Walter 1997). Most important objectives are the revitalisation of certain areas (mostly in or near the city center), the preservation of cultural monuments and the development of big residential quarters with 2000 and more apartments.

It has become common practice to summarise different promotion programmes and ways of financing under a uniform roof; integrative approaches are pursued to an increasing extent. The programme of urban development measures "The Social Town" (since 1999) is an example. The main goal is the elimination of social problem situations in problematic neighbourhoods. In general, old building quarters near the city or large residential areas dating back to the post-war period are concerned. Targets significant for traditional industrial regions include the elimination of deficits in terms of urban development, the creation of open and green spaces and a general improvement of the ecological situation.

If there is a high level of vacant flats (which applies to many industrial regions in Eastern Germany), it is now also taken into consideration to demolish dwelling houses within the framework of an general urban development strategy. Thus, it is discussed in Leipzig to demolish houses from the years before 1914. Large block residential areas in mono-structured former industrial cities are thereby also affected (among others Hoyerswerda, Schwedt).

In particular, the re-utilisation of industrial wasteland offers several advantages: It is possible to use further the existing infrastructure; the image of the respective settlements or quarters can be improved, and the land use in the outer districts is restricted. However, the precondition for this is often the remediation of possibly existing contaminations, excluding present and future dangers for health and human environment (danger control). The more comprehensive goal of environmental protection even without direct danger for humans is not propagated.

Apart from measures taken immediately, such as fencing etc., various procedures for decontamination, safeguarding or long-term restriction of use are considered in the course of remediation (SRU 1995). In addition to scientific-technical problems, such as dimension, mobility and toxicity of the pollutants, decisive factors for selecting an appropriate remediation procedure are legal problems, the planned use of the area and the proportion between costs and benefits. In general, several procedures are used at the same time.

The exemption ("Freistellung") which should allow the buyer of industrial wasteland in Eastern Germany to hand over the risk of ecological remediation to the public was not widely applied.

Table 5: Technical methods of remediation of environmental pollutions

Measures to be taken immediately
Target: Control of directly occurring dangers
Decontamination procedures
Target: Falling below certain pollutant concentrations
Examples: Microbiological procedures, chemical-physical procedures
Safeguarding procedures
Target: Interruption of emission paths
Examples: Immobilisation of pollutants, encapsulation, passive hydraulic measures
Restrictions of use
Target: Control of long-term dangers
Examples: Restriction of use in terms of planning, blocking of the area

Source: BMU 1994, SRU 1995

Several special regulations have been issued (Radtke / Eisenbarth 1993, Postlep 1994, Danielzyk et al. 2000) in order to meet the special challenges of ecological remediation in Eastern Germany. Totally seen, 21 regionally significant cases of remediation have become large-scale projects with an own financial framework (each > 100 million DM). The instruments of labour market policy have been significantly improved by 1st January 1993, granting federal money for the labour-intensive disassembly of plants and the remediation of areas by unemployed persons (§ 249h Employment Promotion Act). Large-scale investments with exemplary environmental effect are supported by interest subsidies.

Together with the affected Länder, the federal government also takes over the immense remediation costs for the closed lignite and uranium mining which would normally be covered by the mine operator. For the lignite mining, the costs are estimated at approx. 1 billion DM per year from 1992-2002 (UBA 2000c); going beyond danger control, there is also the explicit possibility to purposefully adapt the newly created landscapes to a planned subsequent use (for example pedestrian greenways, vantage points for tourists).

The remediation costs for the uranium mining were 1991 estimated at more than 13 billion DM (Wismut 2000). Within the scope of a special programme, the radiological loads imposed on humans and environment by the uranium mining are minimised, without reaching "normal" values. The instrument of the remediation and development region is a special case. It enables municipalities that do not get any subsidies from the state due to taking over the mining areas before 1963 to combine ecological remediation and economic development.

Totally seen, the legal, technical and financial side of environmental contaminations and mining remediation can be basically considered to be solved. There is, however, a restriction in terms of urban and regional development because brownfield development turned out to be less successful than desired because of various reasons. In spite of the enormous efforts, inner-city unused areas and commercial suburbanisation exist side by side.

While the EU and the Federal Government concentrate on formulating and financing regional policy programmes, the Länder play in addition to this a special part in implementing programmes and funds management because of their nearness to the cities and regions. Moreover, they are also responsible for the legal framework for local government policy. In this connection the Länder have also to ensure by the way of fiscal transfers that those municipalities which have inadequate financial resources (often in industrialized regions with structural problems) can fulfil their tasks. In the Bund-Länder task "Improvement of regional economic structure", the Länder are responsible for realisation and can also place certain emphasis on special topics within the given framework, to mention just an example. In addition to it, the Länder issue their own programmes, which often aim to integrate all available funds. The important example of the policy in North Rhine-Westphalia for the Ruhr district shows in which way the concentration in terms of content has been shifted to integrating sectoral measures, while including local and regional participants in strategies for industrialized cities and regions with structural problems.

The first programme of the Land for the Ruhr district in 1968 was mainly concentrated on creating new jobs in industry by taking various infrastructure measures, in particular in the field of traffic (Heinze/Hilbert and others, 1996, 17). Moreover, universities and the school system have been extended. In the programme issued two years later for the whole territory of North Rhine-Westphalia, further measures for the Ruhr district were adopted. Apart from the creation of new jobs, the improvement of competitiveness of coal mining and further processing came to the fore. The extension of infrastructure for research, education and training is considered the greatest success of both programmes. After the Ruhr Conference, with representatives of many specially relevant groups participating, the Land issued the "Action Programme Ruhr" in 1979. This was a qualitative further development and included not only measures of qualification, trend-setting technologies, innovations and entrepreneur investment force, but also measures in the fields of town planning, cultural policy, environmental protection and infrastructure.

Under the pressure of a further crisis of coal and steel industry, the Land developed the "Future initiative for the mining region" in 1987. In terms of content, this programme was the continuation of the previous programme. However, the approach was completely different: It was the idea to include the participants of the cities and regions into implementing the structural policy of the Land to a higher extent. The regional conferences were the instrument of the decentral dialogue between the relevant participants. Thus, expert knowledge and purposive ideas of the people in the respective cities and regions could be made use of. The available funds had to be used more efficiently by co-operative approaches and a quick realisation of projects ensured. In 1989 this regionalised structural policy was

extended to all parts of North Rhine-Westphalia; since that time, this approach of regional developments played a significant role all over Germany.

In the same year, a second, not less influential initiative of the Land was started. The International Building Exhibition (IBA) Emscher Park was related to the most problematic part of the Ruhr district and laid out for ten years. The IBA stands for a new understanding and a new notion of the renewal of industrial problem regions (Kilper 1999, 309). First this holds true for the content of the strategy. It was the aim to integrate economic (e.g. infrastructure for innovation), ecological (e.g. landscape parks), social (e.g. ?), culture (arts), historical (e.g. industrial heritage), and aesthetic (architecture) aspects in the programme and the 120 projects. Secondly, in order to make this possible institutional innovations were implemented. Coordinator of program and decentralized projects was the IBA planning corporation which had been founded especially for this purpose. Those who wanted to get support for the projects (e.g. municipalities, cooperations) had to apply for money in a competition. Last but not least should be mentioned that representatives of economy and public life have founded a "initiative group Ruhr" (Initiativkreis) which supports among other things the change of the image of the Ruhr area.

In the Eastern German Länder, there is a completely different situation than in North Rhine-Westphalia. Firstly, they are affected by de-industrialisation all over the place and suffer from a much higher problem pressure. Secondly, they are much weaker in terms of economy and finances and thirdly, they had to develop a functioning administration system adjusted to the new situation. Thus, they depended on outside help to a high extent. The policy of the states played a relatively minor part. Nevertheless, the success of the efforts directed to adjusting conditions of life to Western German standards depended on the policy of the states.

In this respect, the following measures had to be taken: Creation or remediation of basic infrastructures, such as traffic and education, creation of an infrastructure linked with economy, such as industry and enterprise zones as well as investment and innovation promotion, whereby large-scale projects play an important role. Moreover, new approaches of improving environmental and landscape quality, consideration of the overall urban development and inclusion of culture have also been made. The new Länder have also taken measures to activate regional co-operation, in particular the co-operation between municipalities (Danielzyk/Wirth 2001) in order to promote an efficient and easy use of funds on the spot. Like North Rhine-Westphalia, Saxony-Anhalt pursues a regionalised structural policy. Saxony has implemented central places which are based on co-operation between municipalities and promotes the formulation and partly also the realisation of development concepts for selected regions.

Beyond this, the "East migration" of the IBA Emscher Park model is an interesting aspect. The correspondence region Saxony-Anhalt of the EXPO 2000 in Hanover was organised similarly and based on preliminary work of the Bauhaus Dessau. In 2000, the lignite area of Lower Lusatia started the landscape-related IBA Fürst-Pückler-Land aiming at laying out the landscapes following mining activities.

4.2.2 Strategies of the Regions and Cities

In Germany the regions are a policy level between the tier of the states and the tier of the municipalities. Firstly there are planning regions which are part of the spatial planning system of the states. Secondly there are problem oriented more or less free co-operations between local actors, mostly municipalities, which are of growing importance for regional development. On the basis of their competence and possibilities as well as within the framework and with the aid of strategies on superior levels, they can try to master structural changes together. Due to the high competition of the municipalities to each other, it is generally necessary that superior levels offer special incentives for stimulating regional or inter-municipal co-operation.

The strategies of the regions in terms of content do not basically differ from those strategies applied on a municipal level except that they are co-ordinated or that measures are jointly taken. For this reason, only some concrete examples for a successful, regional co-operation in industrialised regions are to be introduced from the great number of initiatives. For example, an institution for joint promotion of economic development has been founded in the Ruhr district for the region Emscher-Lippe. In Eastern Germany, several cities co-operate as the economic region Chemnitz-Zwickau pursuing the target of particularly strengthening the field of machine and vehicle building by extending and concentrating innovation and research potentials and marketing the region as a site.

In many regions, it is tried to link remediation of the environmental contaminations of the past with the creation of a new aesthetic quality – beyond strategies of economic promotion. Thus, the cities Bottrop, Essen and Gladbeck co-operate in order to renature a small river system and to design a new valley landscape (IBA?). The city of Leipzig and the surrounding municipalities co-operate with the

support of Saxony to improve the environmental situation and recreation areas in the immediate vicinity by giving derelict land back to nature and connecting regional habitat patches. Depending on the commitment and intensity of co-operation, it can be differentiated between "hard" and "soft" co-operation (for example special purpose associations for joint performance of certain tasks or regional conference). In the latter case, a so-called regional management is often carried out for implementing projects, for example by a regional agency.

On the level of the cities, the structural problems are directly perceptible. Here, all measures have to be implemented and the effect of the measures is also evident. As a rule cities mainly use the instruments of traditional municipal promotion of economic development including new establishment of companies as well as support of already existing enterprises. The precondition for this is the respective listing of industry and enterprise zones in the land development plan, their development and the respective site marketing. Supra-local infrastructure, such as long distance railway lines, motorways and airports, but also the establishment of large enterprises and scientific centres, can only be created in close co-operation with the Land. A further instrument of economic promotion is the innovation-oriented creation of founder and technology centres. There are new approaches by trying to form synergistic clusters of companies, to connect research, education and qualification with each other to a higher extent and to promote a creative economic level in this way.

Integrated strategies gain more and more importance in the field of urban development: Ecological, cultural and social aspects are included in the considerations which aim at revalorising soft location factors, improving the local quality of life and the image of the town. Revitalisation of brownfields and their incorporation into urban structure is seen as indispensable in the long run. The same holds true for the keeping of the industrial heritage. Instead of demolishing old buildings, it is often attempted to find new ways of use. Partly, there is an industry tourism creating identity emerging. Moreover, many cities commit themselves to improving neighbourhoods and the natural landscape to a higher extent than ever before. For this, funds of labour market promotion are frequently used within the framework of municipal employment policy.

On municipal level, new strategies of promotion of economic development and complex problems of industrialized cities with structural problems make new approaches of organisation of policy and planning necessary. Many different participants are brought together efficiently and flexibly. This refers to administration, between administration and other participants as well as between participants outside administration. Catchwords are discursive planning and co-operation, participation and public-private-partnership. There are, for example, town marketing processes where all relevant participants are represented. Privately organised associations for the promotion of economic development and location marketing are founded. Drawing up a plan is less important than implementation of concrete projects.

4.3 Conclusions and recommendations

Germany has experienced industrial problem areas since 1957. Since the reunification 1990 it has faced dramatic structural changes in the states of the former East Germany. The affected cities and regions have been assisted with a high financial effort. In the course of time there has been an evolution of strategies which comprise a lot of different policy instruments. The strategies are very much shaped by the great variety of actors on all relevant levels of policy.

There are no standard solutions for solving problems linked with industrialised cities and regions. However, the experiences gained in Germany make it possible to draw the following conclusions. Firstly, the synergetic integration of measures on the basis of specific endogenous potentials of cities and regions gains more and more importance in view of the pressing problems and reduction of available funds. Secondly, higher attention is to be paid to soft location factors that characterise the quality of life – against the background of hard location factors growing together to a higher extent. Thirdly, brownfield recycling and re-utilisation of empty industrial buildings are to be recommended from the view of environment and town planning.

Since the formulation and the implementation of strategies needs knowledge of the local and regional actors it fourthly is necessary to foster the role of cities and regions in the hierarchy of political-administrative levels. Fifthly, in connection to the first conclusion, a better integration of measures requires the better integration of the relevant participants. Following the ideas of Blotevogel (1997), this needs

- a better spatial co-operation between municipalities and districts,
- a better vertical co-operation between the political-administrative levels,
- a better horizontal co-operation between different special policies and
- a better functional co-operation between different participants (administration, companies, science, citizens etc.).

Sixthly, the spatial and functional co-operation in particular needs a special promotion by the superior levels. Finally, mastering structural change in industrialised cities and regions needs a lot of staying power as far as all relevant participants are concerned. It cannot be excluded that in some cases the efforts for a revitalisation might also fail in the long-term.

Laws

Employment Promotion Act Arbeitsförderungsgesetz (AFG)
 Environment Frame Act (of GDR) Umweltrahmengesetz (URG der DDR)
 Federal Immission Protection Law Bundesimmissionsschutzgesetz (BImSchG)
 Federal Soil Protection Law Bundesbodenschutzgesetz (BBodSchG)
 Regional Planning Act Raumordnungsgesetz (ROG)

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