

SEUTE DEERN

The Future lies on Brownfields

Reactivation of Urban Land Reserves -
Redevelopment Potentials and Practical

Information for Investors, Builder-Owner and Real Estate Owners

Imprint

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New technology location at the old inland port Harburg
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Content

Foreword	5
1 - Motivation:	6
Good Reasons for Brownfields redevelopment	6
How Profitable is Brownfields redevelopment for Investors?	7
2 - General Conditions: New Emphasis in Politics and Administration	9
Laws and Ordinances	9
Objectives	9
Support Programs	10
Registration of Land Potentials	10
Further Activities	10
Initiatives for Future Steps	11
Research Activities	11
3 - Market Chances: Chancen in the Real Estate Industry	12
Urban Life is becoming Chic	12
Commercial Sites with the Certain Something	13
4 - Project Examples: Success despite Handicaps - Handling Risks and Disadvantages	14
Location Development through Cooperation	15
Example: Channel Hamburg Nucleus for new Settlements in the City	15
Start-Up Investments	15
Follow-Up Investments	16
Communicative Planning Process	16
Example: Weststadt Essen New Inner-City Quarter thanks to Combined Forces	17
Public-Private Partnership	17
Intense Cooperation	17
Successful Mix	18
Solutions for contamination & Co.	19
Example: Industrial Park Hoechst Chancen and Risk Contractually Controlled	19
Clear Redevelopment Obligations	19
Clear Redevelopment Rights	19
Example: Wasserstadt Povel, Nordhorn Flexible Strategies for Unknown Risks	20
Efficient Redevelopment	20
Efficient Marketing	20
New Demand through new Ideas	21
Example: Townhouse Project Dresden Garden in the Front, Pub Row in the Back	21
Example: Airfield Pferdsfeld "The Idea is Decisive..."	23
"...the Rest is Hands-on Work"	23
Image Revival through Temporary Use	24

Content

Example: Backfabrik Berlin.....	24
Temporary Use as Catalyst	24
Example: Rosensteinviertel Stuttgart Temporary Playground	25
Lots of Fun for Little Money	25
Additional Project Examples.....	26
The Essential Success Factors	26
5 - Methods and Instruments: Overcoming Revitalization Obstacles	27
Overview of the Essential Aspects	27
Check Lists for Brownfield redevelopment Projects	27
Projekt-koordination und Organisation.....	27
Public-Private Partnership - Tips on Team Organization	27
Phase Concept - More Flexibility through Step-by-step Realization.....	28
Support Programs for Brownfield redevelopment	29
Handling Contamination	30
Instruments for the Assessment of Contamination Risks	31
Dealing with Building Stock and Monument Protection	31
Costs and Benefits of Constructional Building Examinations.....	32
Costs for the Reredevlopment of Buildings	32
Tax Hints for Monument Owners	32
Demand-Conform Planning and Marketing	33
Redevlopment Supplements	33
Modern Planning Instruments	33
Temporary and Anchor Uses	33
Overview of Additional Instruments.....	34
Development Work Aids.....	35
6 - Information Sources: Web Links and Literature	36



Living in houses constructed on greenfields outside of cities: more and more city, less and less landscape.
(photo: © Kälberer)



Vacancies in the inner cities
(photo: © Kälberer)

Foreword

If you want to build, you need land. It has always been like this. But the loss of open land outside of human settlements in Germany has never been so massive as in the last 50 years - more than in any other European country.

While fertile land has to make way for new buildings, more and more brownfields in the cities and communities remain unused. Land use and overdevelopment are one of the most pressing environmental problems at present. Other consequences are higher costs for the community and a loss of urban quality of living.

Reducing land use is not only a central political aim of the federal government but also a part of the agenda of a growing number of federal states and communities. The reactivation of land reserves in the inner cities plays a key role in this process. Growing interest of real estate users to work and live within urban locations also gives rise to hope. Meanwhile, numerous inner city quarters have been reporting population growths again and the number of residents in many rural areas has been declining.

Urban brownfields meanwhile appear in a new light: as a chance of making the quarters more interesting, worth living and also more attractive for new redevelopment concepts. Inner city locations are more sustainable for construction projects than projects on rural land not only in terms of demographic trends. The reactivation of these brownfields is not only facilitated by overall improvement of conditions but also by increasing know-how to overcome development hindrances available.

This brochure informs investors, builders and real estate owners about the potentials of brownfields. On project examples it also introduces methods and instruments, which may be helpful for "land recycling", as is in broader terms brownfield redevelopment sometimes called.

There are various definitions of **brownfields**, but there is no official one. However, the definitions always describe land that was previously used. Such previously used brownfields which are to be redeveloped for ecological reasons, urban development or social reasons but whose redevelopment potentials are hampered by conditions typical for brownfields, are the object of this brochure. Such hindrance could be for example a suspected contamination because of previous commercial, industrial or military use. Brownfields may therefore be for many years used only partly or lie entirely fallow.

Brownfields redevelopment means restoring the usability of brownfield sites. The statements in this brochure also apply to the reconditioning of land with previous military use, which is usually called conversion.



Newly developed site in the south of Trier (photo: © Hüllenkrämer)

1 - Motivation:

Good Reasons for Brownfields redevelopment

There are many reasons for the brownfield redevelopment and thus reducing further land occupation.

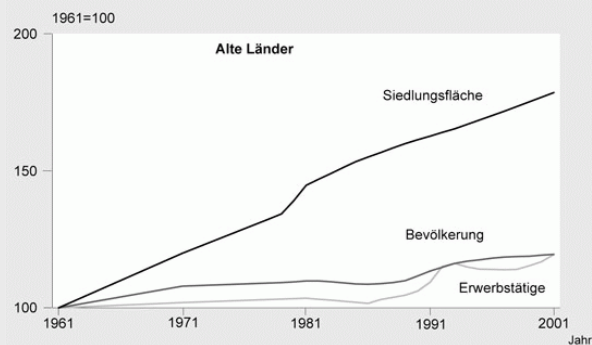
New construction projects on rural land are at the expense of valuable natural resources. The land which was previously mainly used for agricultural purposes is actually the basis for cultivation of food and replenishable resources, supply of clean potable water, equilibrium of the climate and protection from flooding. Preserving natural landscapes is important for plants and animals and for recreation and tourism as well.

The revitalisation of brownfields contributes to sustainable urban development. It can make cities more valuable worth for citizens and workers and more attractive for companies to settle down. It can also contribute to a development of a "city of short routes" and reduce traffic volumes. And it can help to reduce additional expenditures for the construction of nurseries, schools, parks and traffic areas, it avoids construction of supply lines in external areas. The better we utilize available facilities the lower the financial expenses of communities will be.

For the owners themselves, unused land, i. e. brownfields mean unused capital. At the same time, these brownfields incur costs, whether for maintenance and traffic safety, connection charges, land tax and insurance payments or the obligation to prevent hazards. Therefore a fast profitable and safe redevelopment is also in the interest of the owners. Companies which redevelop their brownfield real estate property can also profit from an improvement of the company's balance sheet. This is also advantageous for the Basel II company rating¹, which will come into force for loans

The **land sealing** caused by urban construction and traffic is currently around 100 hectares per day, which corresponds to the area of Cologne on an annual basis. This is not due to increases in the population but due to higher area occupation per person: In 1950, each resident occupied 15 m² of living space, nowadays this number has increased to 40m². Another reason is that single and semi-detached houses have been constructed outside of cities in an increasing number, which requires not only more space per person but also an additional facilities like roads, nurseries and schools. In this way, one loosely scattered single-family home estate requires two to three times more space than a densely constructed residential area. The infrastructure costs are up to three times higher as well.*

Despite this high land occupation, the **amount of brownfields** has been still increasing: Only from the end of 1997 until the end of 2000, in the cities and communities the amount grew at approximately ten hectares per day from 128,000 to 139,000 hectares. This area would span over a half of the Saarland. In terms of construction, this area would satisfy the demand for commercial land for more than ten years ahead.



The urban space increased by almost 80 percent in the western states of Germany from 1961 until 2001. On the contrary the number of inhabitants grew by only around 20 percent.

Source: Federal Office of Construction and Regional Planning (data partially interpolated, without correction of changed survey frames)

*: Ecological, economic and social consequences of land occupation:

http://www.umwelt.schleswig-holstein.de/servlet/is/39407/vortrag_stefan_siedentop.pdf

in the near future. The companies at the stock exchange gain from the activation of silent reserves too. It brings advantages in the IAS/IFRS balancing, which has been applied since the beginning of 2005².

Not only environmental and nature protection agencies like NABU³ have been engaged in the reduction of land sealing and the redevelopment of brownfields. Other groups have been opposing new developments and strongly promoting the brownfield redevelopment in the inner cities as well.

They have been lobbying for corresponding political steps, especially for financial support and different taxation.

Examples of such bodies are the "Deutscher Städtetag" which advocates sustainable urban development⁴, the "Deutscher Mieterbund", which expects more direct housing construction support and the "Deutsche Kreditbank", which takes a stand in prevention of misdirected resources.

Brownfield Redevelopment: Profitable for Investors?

Compared to rural locations, brownfields in urban regions have typical advantages and chances but also disadvantages and risks.

Typical **advantages** of brownfields:

- Better site quality (centrality, public transport, urban environment, closer location to business partners)
- Stable increasing value of the property, especially in regions with a declining population
- Less risk of vacancy due to a broad utilization spectrum, especially when mixed use applied
- Lower construction cost thanks to available infrastructure, and lower allocated costs because of the utilization of public infrastructure
- Savings on ecological compensation measures
- Financial incentives and support programs
- Marketing advantage and longer life cycle of buildings with special flair
- Possibility of promotional temporary use

• Typical **disadvantages** and risks:

- Higher costs and delays, due an to inefficient organization and insufficient cooperation between the players involved
- Risks, e.g. contamination and its handling
- Costly or restrictive regulations, e.g. monument protection for existing buildings
- Contra-productive support structures favouring further land sealing of greenfields
- Marketing troubles caused by “brownfield” image



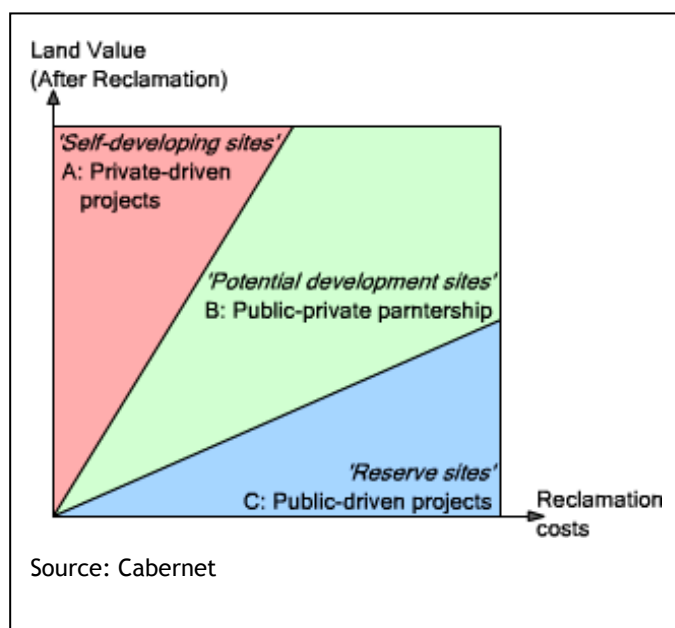
Quickly marketed: objects at Rummelsburger Bucht, Berlin (photo: © Kälberer)

The following chapters will portray the respective influencing factors in detail.



1 Motivation

The profitability of brownfield redevelopment projects, meaning the relation between the costs of the construction development for a brownfield and the profit achieved, varies greatly from a location to location. An economic potential of brownfields becomes evident on an "ABC model":



In general we can distinguish between three types of brownfields:

Type A "Self developing sites": are such locations where the expected profit of a brownfield redevelopment is pronouncedly higher than the expected costs for the preparation and construction (e.g. objects in good locations in prosperous regions). These brownfields are attractive for private investors and run even without additional assistance (e.g. support funds) and therefore do not lie fallow for long.

Type B: "Potential development sites"

are on such locations where the profitability is not secure due to risks. Certain approaches and assistance are generally required to reduce risks, distribute costs and speed up the process in these cases. Cooperative relations between private investors and public institutions are highly recommended here, e.g. Public-Private Partnerships. These "B" type brownfields are the main focus of this brochure.

Type C: "Reserve sites" are such locations where the expected income from the redevelopment is substantially below the expected costs for this redevelopment and construction (e.g. in case of a large excess of real estate offers). These brownfields can only be developed with substantial public subsidies.

A survey of the Federal Office of the State Building Societies (LBS) provides an indication of the profitability of realized brownfield redevelopment projects⁵. 57 communities in urban areas provided information about the brownfields redeveloped to residential construction land:

60 percent of the projects were profitable. In 22 percent of cases the planning and development costs were higher than the land value increase, but not higher than the corresponding costs on rural land would have been. The costs were higher in 18 percent of the cases only.

This shows that brownfield redevelopment projects were realized economically and in most cases even without support funds. The costs were lower to alternative rural sites.

This brochure concentrates above all on the redevelopment of "B" type brownfields, meaning the brownfields where the investment decision is "on the brink" and which are interesting only under certain conditions. Methods and instruments presented in this brochure shall introduce additional ways to carry out projects on such "problematic brownfields" successfully to builder-owners and real estate owners. It is especially important as the real estate market is becoming increasingly affected by demographic shrinking in many regions.

2 - General Conditions: New Emphasis in Politics and Administration

Improving brownfield redevelopment (utilizing urban land reserves) is increasing on the political agenda of the federal government, the states and the communities. More and more players are becoming aware of the advantages of brownfields redevelopment for environment, society and economy. In the recent years numerous measures have led to an improvement of general conditions for brownfields' redevelopment to greenfields' sealing.

Political objectives, statutory regulations, support programs, pilot projects, planning directives, incentives and work on public relation are among the essential policies applied to promote brownfield redevelopment. Programs and funds for brownfields potentials' databases, land management improving and better inter-communal cooperating are other important instruments.

Laws and Ordinances

Overtuning the trends in land sealing was already on the agenda of the federal government in the **Land Protection Concept** from the year 1985. Supported by the "land protection measures" approved by the federal cabinet in 1987 the land protection became one of the most important interdisciplinary and interdepartmental tasks of the environmental policy for the following years. There have started the intentions to amend laws, ordinances and administrative regulations, work out technical guidelines, expand information databases and initiate and support numerous research and development projects.

Some of these intentions have been implemented in the meantime: A demand for gentle handling of land resources was incorporated into the **German Construction Code** in 1998 (land protection clause). One clause prescribes that communities have to carefully check each construction plan claiming new land reducing open spaces

or sealing further land. The obligation to compensate new **land sealing** measures and different environmental protection measures are supposed to reduce land occupation. German Construction Code, lastly amended in July 2004, enables an application of new planning instruments which make brownfields' redevelopment easier.

The **Federal Land Protection Law**, also adopted in 1998 and the **Federal Land Protection and Residual Contamination Ordinance** from 1999 improve legal certainty for brownfields with residual contamination and enable more cost-efficient and ecologically more effective measures to detect and clean up the contamination.

"Methods and Instruments" in the chapter 5 describe the most important possibilities given by the new regulations for brownfields redevelopment projects.

Objectives

The aim of the federal government to protect open spaces, to control the urban development on the boundary of urban and rural land and to make urban development more attractive and environmentally friendly was specified in the **National Sustainability Strategy** in 2002: The goal is to **reduce land occupation to 30 hectares per day until 2020⁶**.

Meanwhile, some federal states have issued **precise guidelines** to limit further land sealing for construction.



Redevelopment at an appropriate extent: soil air extraction test in a public park (photo: © Kälberer)

For example, according to the **quantitative framework** of the regional urban plan of Schleswig-Holstein, the site designed for new housing construction outside of residential sites may not grow by more than 20 percent in 15 years. In the state of Hesse, the regional planners give **quantitative objectives** for each community. Maximum urban land requirement is defined and may be exceeded only in exceptional cases. In order to control locating of new projects, specific sites for residential settlements, commercial and industrial facilities were exactly defined in construction control planning.



Support programs: better perspectives for old buildings (© Kälberer)

Many cities and communities have been striving to reactivate their land reserves for some time. According to a survey by the German Institute for Urbanism [Deutsches Institut für Urbanistik (difu)] in the summer of 2000, almost 90 percent of the 149 interviewed cities rated the revitalisation of brownfields as one of the most urgent **urban development policy task**. About one third of the communities had already approved a political resolution concerning this or was in the process of preparing one⁷. More and more communities have developed **strategies for handling brownfields** in the whole city. These strategies are appearing in the regions with high demand of land as well as in the regions affected by structural changes and declines in population. For example, the new mission statement "Metropolis Hamburg - A Growing City" [Metropole Hamburg - Wachsende Stadt] considers projects for brownfield redevelopment as a central tool in bringing in companies, attracting residents and stopping everybody from relocating to rural lands. In the city of Stuttgart, which is known for a large demand for real estate properties, the regeneration of brownfields should contribute to the reduction of land sealing down to 5 hectares per year in 2020.

Support Programs

Programs support revitalization of brownfields directly or indirectly. They are provided especially by the European Union, and then by the federal government and the federal states. **Incentives and programs have been more and more contributing to the "inner development than outer development"**. Therefore many federal states are exclusively concentrating on the urban development support (e.g. Brandenburg) or especially on the inner cities and brownfields (e.g. Thuringia). Financial engagement of the communities is also increasingly directed towards brownfield revitalization. Last but not least, the changed house owner's allocation has improved the competitiveness of brownfields. Purchases and the refurbishments of buildings located on brownfields receive funding in the same extent as new construction located on greenfields. Fundamental support programs for brownfield redevelopment are introduced in the chapter 5 "Methods and Instruments".

Brownfield's Potential Registration

More and more communities are obtaining an overview of their brownfields. Already in 2000, 70% of all 149 interviewed cities centrally registered type, size and special characteristics of their brownfields or were in the process of preparing such a registration system⁷. Special **"brownfield registers"** are increasingly put into use and updated on regular basis. They facilitate better management and marketing of these sites. For Example: **"Site certificates / passports"** were established under "Sustainable Construction Land Management Stuttgart"⁸ and a register for sites available for residential construction was set up in the city of Dresden⁹.

Further Activities

Image campaigns advertise living and working in the city. Worth mentioning are the information brochures about construction in the city¹⁰ in the state of Brandenburg or the public relation activities of the inner city initiative **"Ab in die Mitte!"** [Let's Move to the Centre!] in several federal states.

Regional Cooperations for brownfields regeneration are supposed to provide investors with higher investment safety through coordinated economic development. "Regional pool of commercial sites" created by 22 communities in the Zollernalb district¹¹ or "potential investigations and test planning" by communities in Murgtal (Baden)¹² are among successful cases.

New brownfield regeneration concepts are tested on **pilot projects**. One example is the initiative "Genial Zentral - Unser Haus in der Stadt" [Perfectly Central - Our House in the City] by the state of Thuringia, which supports 15 communities in the development of an individual and affordable living space on brownfields in inner cities¹³.

Work tools facilitate the implementation of the political aim to increase brownfields redevelopment. One example is the Bavarian tool "Kommunales Flächenressourcen-Management" [Communal land Management]¹⁴.

Initiatives for Future Steps

Despite all these initiatives and measures, there is still a lot to be done in order to improve the overall conditions for redevelopment projects. The federal government and a working group "Verminderung der Flächeninanspruchnahme" [Reduction of Land Occupation], which is representing several federal ministries, are working on a collective catalogue of measures. The goals are a land use report's improvement and also a designing of legal, planning and financial instruments. Political strategies and measures discussed in this process are not a part of this information brochure. The essential elements are summarized in strategy papers of the Federal Environmental Office^{15 16} and of the Sustainability Council¹⁷.

The regeneration potentials of vacant sites and empty buildings are also investigated in the program "urban conversion" of the Federal Ministry of Transport, Construction and Housing for, which serves to tackle the problems caused by declines in population and housing vacancy.

Federal states are also working on suitable strategies, examples are the "Bündnis für Flächensparen" [Alliance for Land Saving] in the state of Bavaria and the inter-ministerial workgroup "Reduzierung der Flächeninanspruchnahme" [Reducing Land Occupation] in the state of Baden-Wuerttemberg.

Research Activities

Number of research projects dealt and are dealing with improving of conditions for brownfield redevelopment. They are delivering more efficient procedures for revitalization projects. These include, among others:

- collecting and updating information about brownfield inventories¹⁸,
- balancing costs and benefits of revitalization measures for investors, communities, society and environment¹⁹,
- evaluating practical experiences gained in Germany and in other European countries and the USA²⁰,
- developing work tools for investors and authorities
- providing politics and administration with recommendations



An empty hall waiting for new life (photo: © Kälberer)

3 - Market Chances: Chances in the Real Estate

Economic potentials of brownfields are usually higher than expected. Especially in the urban environments it is being proved by the real estate market demand as we explain below.

Urban Life is becoming Chic

Desire for more space, more light, a lot of fresh air and open nature has tempted many inner city residents to leave their urban quarters and relocate to single-family houses outside of cities. None the less, a new development has been emerging since around 1997 and is bringing new chances for brownfields in the city. Contrary to the previous trend, the population in many cities is increasing again. This change is especially rising in the east of Germany, where some old city quarters close to the inner city once again show significant population increases - up to around 40 percent since 1997. Any general change in trends featuring "back to the city" tendencies however cannot be reported. Much rather the increases concentrate on city quarters that have been redeveloped in recent years, while other districts with less advantageous conditions continue to lose residents^{21 22}.

Typical attributes of successfully revitalized quarters:

- Location (especially close to the inner city)
- Close proximity to green spaces and parks
- Old building atmosphere, flair, historical ambience
- Image (among others, popular district, environment, etc.)
- Proximity to workplaces or educational facilities (universities etc.)
- Friends close by
- Infrastructure (schools, nurseries, shops, doctors offices, transport connections)
- Pubs, cultural and catering facilities nearby
- Living quality, quietness

Many previously unattractive and "problematic" quarters were profoundly changed through the redevelopment and quarter management. For example, an old district of Plagwitz in Leipzig, which used to be known rather for old industry and housing projects for workers, has gained 20% in population since 1997²¹. If the revitalization of brownfields delivers what was previously missing in the quarters it can play a decisive role in the whole matter. Shall it be senior homes, apartments suited for families, special shops, cultural facilities, catering facilities, public facilities or playgrounds and parks or the missing "green" in the city.

As surveys have shown, there are many different explanations for this change:

- **Quality:** Enhanced offer of urban housing. Deeper satisfaction with housing is reported especially from the east German cities^{23 24}.
- **Costs:** Former decline in residents made the residential offers in the city affordable, which was a decisive criterion for many prospective tenants.
- **Growing interest in living in an urban environment:** According to a survey by ICON commissioned by the state Savings Societies, two out of three Germans prefer living in the city - 13 percent in the inner city, 53 percent in the suburbs. Only roughly one third prefers a rural environment.²⁵
- **More interest in redeveloped old buildings:** According to a survey by Emnid commissioned by the financial corporation BHW, each second person in the west German states between 20 and 40 would like to purchase and modernize some nice old building. In the east Germany, 43 percent would like an "used" house mainly in the cities.
- **Demographic change:** Younger tenants (partially in flat-sharing communities) are replacing old tenants.
- **Additional factors:** For example, better offers for working and education in conglomerate areas, the depletion of rural land or improved environmental quality in the city.

Commercial Sites with Something Special

Many Germans are interested in real estates typical for brownfields. According to a survey by the magazine Stern and the Building Society Schwäbisch Hall, each 4th person could easily imagine living in a city quarter that would be created through the redevelopment of an empty construction site between two houses, old building quarter or former barrack or factory.

Even in a much more demanding target group of young families, by far not everyone dreams about their "own house in the country". Surveys in different cities have shown that the reason for deciding to relocate outside of the city is rarely a general dislike of living in the inner city. Lack of sufficiently large apartments at affordable prices, unsatisfactory social environment or the wish for a better environmental quality and free space are the strongest decisive factors for the migration to the rural land^{26 27 28}. The aspects of "environment" and "social environment" can play an important role, especially in the areas touched by structural changes - i.e. especially the areas with many industrial brownfields where improvements of the environment bring significant effects.

With an appropriately addressed program new target groups for real estate projects can be reached, for example senior citizens. Around a half of the people of 50 years of age or more will move at least one more time²⁹. In order to enable living of different generations in the same quarter, the construction on brownfields can supplement the housing offer with apartments of various sizes and thus meet different space requirements of senior citizens and families.³⁰

Even though numerous commercial companies relocated on the land surrounding the city, the brownfields in the inner-city can still be interesting for commercial redevelopment. They especially stand up against rural sites when the advantage of their typical attributes is taken:

- Central location in an urban environment,
- good transport connections - also with public transport,
- strikingly positive image if clever revitalization management applied.

Precisely these location factors were identified as the decisive deficits in an analysis of commercial sites in North Rhine-Westphalia which were hard to sell³¹.

Sites previously used for commercial purposes have other advantages too, e.g. uncomplicated permit approval procedures when the site is used for a similar type of commercial purpose or a presence of usable infrastructure.

The importance of urban location has been increasing lately - which applies to brownfields as well.

Typical commercial users of urban brownfields:

Historical buildings on brownfields can serve for a good representation of **high quality standards and distinct corporate identity**. The companies can profit from valuable location in an urban environment and remarkable architecture.

Technology-oriented companies, production companies based on intelligence and service providers employing many experts prefer central locations not only because of better networking possibilities and easier business contacts but also because of the fact that highly qualified labour force prefers urban locations with a high quality standard of living.

Network and district companies profiting from a certain customer base or a group suppliers in the surroundings prefer central or historical locations too.

Other examples of service providers and commercial companies which have located on revitalized brownfields are described in the next chapter.

Shopping centres and local supply facilities are once again rising in city centres or in densely populated city districts. The background is not only a growing interest of local politicians to revitalize the inner cities but also more restrictive approval practices vis-à-vis for settlements on the rural land. This brings satisfaction to the customers who prefer short routes and want to run their errands on foot or by bicycle.



The cotton spinning mill, a popular address in Leipzig

(photo: © Kälberer)

4 - Project Examples: Success despite Handicaps - Handling Risks and Disadvantages

We portrayed overall conditions for brownfield redevelopment in the previous chapters, the influence of politics and administration as well as the real estate context of brownfields. However investors and/or builder-owners can substantially influence the success or failure of brownfield redevelopment projects themselves - by their own approach.

This chapter highlights successful methods for typical brownfield redevelopment projects' problems handling. As the evaluations of previous projects have shown, it especially concerns the following aspects: ^{7 32 33 34}

- **Performance** of brownfield redevelopment projects: Problems with **cooperation** of numerous project participants and **costs and risks** typical for brownfields (e.g. contamination),
- **planning and marketing**: Low **demand** and bad **image** of brownfields.

These influencing factors may lead to **higher costs and delays in the project.**

The **profitability** turns out to be the **decisive** factor in all investigated projects. **Quality of the project organization** and the **cooperation between the participants** (e.g. investors, real estate owners and authorities) were of a special importance as well. Although the development of the real estate (e.g. the removal of contamination) lead to varying degrees of cost increases and delays it was not the decisive factor in any of the projects. However a degree of uncertainty in terms of economic and legal risks can significantly contribute to the decision not to enter the redevelopment project.

On the following pages, we will present eight case studies where the hindrances typical for brownfields were overcome through special approaches. We especially selected projects that were no "self developing projects" but still concluded successfully.

The first two examples (Hamburg, Essen) focus mainly on the project planning, organization and coordination. The next two (Nordhorn, Hoechst) deal with contamination. Two other projects (Dresden, Pferdsfeld) present approaches for activating new users, and the last two examples (Berlin, Stuttgart) show the possibility of profiting from temporary use in transition phases.



Backfabrik Berlin (photo © Kälberer)

Location Development through Cooperation

The quality of the **project organisation** and the **cooperation** between the project participants - e.g. builder-owner, property owner, involved planners and authorities as well as between the administrative units - are among the most important success factors of any revitalization project.

In the following, we will present projects, which turned out to be especially successful in this respect: **Channel Hamburg** and **Weststadt Essen**. A lively office and service location was created in Hamburg in just a few years thanks to a consensus-oriented planning process, and in Essen, the planning and approval processes were facilitated through a public-private partnership.

Example: Channel Hamburg

Nucleus for New Settlements in the City

When Arne Weber, head of the construction company H. C. Hagemann, purchased three hectares of land at the Harburg inner harbour in 1990, this industrial area 10 km south of Hamburg's inner city was an unknown territory for the most people in Hamburg. It has changed in the meantime. Weber's site and its surroundings have meanwhile turned into a well known and rapidly growing industrial location. The development project received several awards, among others the DIFA Award 2002 of Deutscher Immobilien Fonds AG in the category "Quarters under Construction".



Channel Hamburg: From the soap to the think factory (photo: © Günter Sommerfeld)

Start-Up Investments

The first Weber's project was the conversion of a shut-down soap factory into an office building for Deutsche Telekom. He had realized a special potential of the location shortly before the city of Hamburg constructed the MAZ Microelectronics Application Centre to attract new high-tech companies to the neighbourhood of the Technical University Hamburg-Harburg.

The goal of the city was to develop new structures in the area of the harbour while at the same time largely sustaining the activities in inner harbour and its peculiar flair. Affordable land prices and very good transport connections were additional advantages of the locality.

Weber used these prerequisites to create a real estate offer in the atmosphere of the old harbour that wins over common office or commercial locations by combining technology, science, catering and culture companies in close location.

Follow-Up Investments

Other settlements followed soon: In 1994, the city of Hamburg constructed a new building for the MAZ, whose futuristic architecture was to set new accents. A year later, Weber converted a former "Palmspeicher" into an office building with a restaurant and event rooms. Further, he situated modern office buildings in between the old port buildings. The "Channel I" building, constructed in 1998 and awarded by the architects and engineer association Hamburg, was "cloned" in the shape of three other buildings with the same appearance along the dock. This resulted in low construction costs of 1,100 Euro per square meter on the storeys and an office rents of 12 Euro.

In some time ten newly constructed or converted buildings rose in the area commonly called as "Channel Hamburg". One of them is the "channel tower", constructed in 2002, which dominates the new Harburg skyline with its 75 meter height. More than 90% of Weber's real estate's offers has been already sold. Fast growth in the old harbour enjoys great resonance in the media and on Hamburg's political scene.

This area near the harbour which spans approximately over 100 hectares meanwhile attracted further investors who have started constructing additional architectural landmarks. 'The Silo', for example is a 14-story office building, in which the office floors were integrated into a former grain silo. Another combination of architecture under monument protection and a modern glass facade was realized on the silo complex 'Kaispeicher Harburg'.

Approx. 70,000 m² of new space were created at the Harburg harbour and more than 80 new companies with over 4,000 employees have settled here. New technology companies profiting from the proximity to TU Harburg and global players like Deutsche Telekom with its subsidiaries T-Mobile, Siemens and Heinrich-Bauer-Verlag are among these. Two companies relocated from Hamburg's "City South" to the old harbour: the international certification and classification company Bureau Veritas now resides at Kaispeicher in Harburg, and the German headquarter of the pharmaceutical company Lundbeck moved into the "channel tower". For both companies, the surroundings of the harbour were the decisive criterion. Although the old location had comparable rental fees, there were no shops or catering facilities. In the port area, the employees and their guest can now choose between numerous offers, whether the panorama restaurant, the historical inn, the street café or aboard a museum ship.



Meeting point Café Madrid: soft location criterion for hardware experts (photo: © Channel Hamburg e.V.)

Communicative Planning Process

Successful settlement of new users despite the immediate proximity to the harbour in operation can be attributed to the participative planning and development process, in which investors, owners, industry associations, chambers and residents were involved. The Federal Ministry of Construction sponsored an extensive project of the city of Hamburg: an "experimental housing and urban construction project"³⁵. This development was last but not least promoted by general involvement of the city of Hamburg, who created a new space for industrial settlements in the inner city by redeveloping brownfields. One of the first key points of this development is the Harburg inner harbour.

Notable development obstacles:

- Unknown location, 'isolated from the surroundings'
- Bad image of the quarter
- High demands on the mixed use: research and services adjacent to an operating harbour
- Historical buildings, partially under monument protection
- Oversupply of offices in the real estate market

Special success factors:

- Engagement of the first investor
- Continuity of the project managers
- Communicative planning process
- Community and private key projects
- Joint marketing, "brand name" Channel Hamburg

Achievements of the investor:

- 90 percent occupation (Hagemann objects)
- Improved image and key projects promoting further development

Example: Weststadt Essen

New Inner-City Quarter from Combined Forces

The steel industry and coal mining were determining the appearance of the city of Essen for a long time. Meanwhile the image has changed: many factories and mines were closed down, new industry sectors have grown. The goals of the urban planning in the city at Ruhr have also changed. Instead of large-space monostructures and the separation of living and working districts, the mix of uses is being designated increasingly. A large factory on 11 hectares gave a special chance for this aim. It was the site of the former turbine factory AEG Kanis on the western outskirts of the inner city in Essen.

Public-Private Partnership

As a result of the interdisciplinary and consensus-oriented discussion process, a new quarter with commercial and residential sites, retail trade, services, cultural facilities, catering and green spaces was to be constructed on the industrial site. The city of Essen purchased the land in 1988 and would not have been able to cope with the large efforts of the conversion alone. The overall task would have not been enough interesting for a private investor from an economic point of view either. The solution came in a public-private partnership of the city of Essen with the communal Essener Wirtschaftsförderungsgesellschaft mbH (EWG) and privately acting Landentwicklungsgesellschaft NRW GmbH (LEG), who purchased the property in 1994.

Intense Cooperation

LEG's task was the development and marketing the property as well as its financing. It was also involved in the conversion of the factory hall under monument protection into the musical theatre "Colosseum". In turn, the city of Essen took care of the planning and permit prerequisites. It also non bureaucratically accompanied the construction of the development facilities and took them over after the completion. Pursuant to a cooperation agreement with LEG, EWG coordinated the negotiations with the town administration, which speeded up the process, and supported the marketing activities by acting as contact partner for the clients. The LEG project team, which included a member of EWG, had an essential influence on the content and the success of the project. An early coordination of construction projects between investors, LEG, EWG and the planning and the construction administration of the city of Essen was just as important.



Musical theater Colosseum: key project in the marketing of the western Essen city
(photo: © Stage Holding)

4 Project Examples

Successful Mix

The project organization and an intense marketing for the new quarter were well worth the effort: the first contracts for construction projects were signed even before the termination of the construction planning. Today, around ten years after the start, the realization of this city quarter is almost completed. All brown-fields are sold, approx. 80 percent of the construction sites are built up. Investments of approx. 18 million Euro for construction development funded by the regional industry support program of the state of NRW triggered the construction investments reaching several hundred million Euro.

A musical theatre, erected for around 30 million Euro, developed into an attraction that is well famous beyond the region. It was a key project for the marketing. Two large furniture stores, which are usually located outside of the city, have also settled here. Almost 2,000 people will have been employed here in Weststadt when the last tenants move into the buildings which are still under construction - twice as many as in the last industrial use of the property. The real estate market responds to the mixed use positively: all apartments were fully used just after a few months and yield very high rental profits. Essener Weststadt is mentioned as a "good example" in the "Mixed Use" program of the experimental housing and urban construction department of the Federal Ministry of Housing and Urban Construction (ExWoSt)³⁶.

Special development obstacles:

- Bad economy
- Deficiencies in urban planning
- Bad connection to the centre
- High demands on the Mixed use including cultural facilities and green space
- Old buildings under monument protection

Achievements of the investor:

- Realized objects completely utilized, high rental yields
- Further development facilitated by the key projects

Special success factors:

- PPP with close cooperation between the partners
- On-site project management with representatives of both partners authorized to make decisions
- Personal engagement
- Personnel continuity
- Consensus-oriented and flexible planning process
- Marketing through the key project (musical theatre)
- Image of 'lively district of Weststadt'



Construction monument Colosseum: a large stage for culture in the district (photo: © Stage Holding)

Solutions for Contamination & Co.

Unknown risk is a classic 'stigma' of brownfields. Especially the uncertainty in terms of contamination scares many investors off. Underground pipes and cables as well as buildings on the brownfield may pose additional risks. However, experience has shown that the actual treatment measures are not an obstacle when it comes to the project decision. But still it is very important to give some more transparent and secure image to this unattractive "black box" sector.

The following example of the **industrial park Hoechst** shows one possibility of winning the trust of investors through contractual regulations. The project **Wasserstadt Povel, Nordhorn** demonstrates successful brownfield redevelopment despite of very complicated contamination problems.

Example: Industrial Park Hoechst

Chances and Risk Contractually Controlled

The headquarters of Hoechst AG can look back on over 140 years of industrial use. In 1997 a 4.6 km² large site, until then exclusively used by a chemical corporation, was opened for a settlement of external companies. Since then, 80 companies from different sectors have settled there. These new users invested 1.6 billion Euro only from 2000 to 2003.



Industrial park Höchst: old contamination under control
(photo: © Infracorv GmbH & Co. Höchst KG)

Clear Redevelopment Obligations

An essential element for the marketing of this previously industrially used site was a clear definition of possible environmental risks. Responsibilities for contamination were therefore contractually defined. Underground soil contamination was investigated by large scale tests on the entire site. 194 groundwater measuring spots have been under permanent monitoring yet. All groundwater flowing off the location is pumped up and cleaned as much as necessary. Each investor receives precise information about the contamination on the respective brownfield as well as required decontamination measures, which must be coordinated with the authorities in charge. These regulations protect investors from additional decontamination demands. The developer has worked out a concept of the development of the industrial park in the future and performs the decontamination measures accordingly to prevent time delays for potential investors.

Special development obstacles:

- Complex contamination of the underground
- Previous industrial use, industrial environment

Achievements of the investor:

- Cost-efficiency and legal safety
- 1.6 billion Euro of private investments in business settlements

Clear Redevelopment Rights

Options for reuse of the infrastructure available on site are also contractually agreed. The infrastructure is provided by the site operator Infracorv and used jointly by different companies in order to save costs. Infracorv also uses this as an advantage over rural locations where the corresponding environmental, safety and disposal facilities would first have to be approved and constructed.

The contractual regulation made all relevant information for the construction measures available. Well-coordinated cooperation with the authorities in charge and low legal and economic risks promised and ensured by the site operator allowed especially fast, simple and legally safe permit approval procedures.

Special success factors:

- Contractual regulation on the environmental responsibilities (contamination)
- Joint fulfilment of the environmental responsibilities
- Joint redevelopment of the industrial infrastructure
- Offensive marketing

4 Project Examples

Example: Wasserstadt Povel, Nordhorn

Flexible Strategies for Unknown Risks

It used to be a pilot project and remained an outstanding till today- the revitalization of premises of a former textile factory Povel in Nordhorn on the Dutch border.

After the textile factory closed down in 1979, the revitalization of the inner city location was of special importance for the monostructure city. The community purchased the 18 hectare large property, had most of the buildings torn down and flatten the ground. No one suspected any contamination back then. In 1983, construction ideas for approx. 500 residential units were designed in an urban construction competition. These plans became obsolete when soil examinations in 1985 revealed severe and hardly classifiable contamination. A complete removal of the contaminated soil would have meant unfeasible cost for the planned project.

Efficient Redevelopment

Still the city adhered to its aim of a sophisticated future redevelopment but the project participants agreed on a new type of project development: taking the various degrees of contamination into account, the brownfield site was divided into four sections, which were developed in intervals. Different redevelopment variants were designed for these sections in order to be able to flexibly react on the detail levels of contamination revealed as the treatment progressed. This was necessary as it was not possible to reliably predict the hazardous substance distribution despite the previous exploration measures.

The investigation and classification of the materials from demolished buildings within the scope of the redevelopment measures were therefore important to minimize the corresponding costs. This material was evaluated, analyzed chemically on-site and assigned to a particular class depending on the contamination. In this way it was possible to reuse a large part of the material in road and route construction. Lighter contamination was left to natural biodegradation processes, heavier contamination sanitized with biological methods on-site. Wherever this was not possible, the material was subjected to a soil wash or thermal treatment outside of the location. The clean up levels were based on the respective future development plan. Through this approach, only a half of the excavated soil had to be treated, and only 0.7 percent had to be disposed as hazardous waste.

An examination after the redevelopment on the Povel premises even showed less soil contamination close to the surface than in the surroundings.

The measures required during the redevelopment also served for urban construction design. A sealed deposit of material excavated during the decontamination was turned into a landscape pyramid with a vantage platform. Offensive public relation work with a transparent portrayal of the redevelopment process delivered project's acceptance.

Efficient Marketing

This development by section approach reduced an annual financial requirement of the city of Nordhorn. The project turned out to be very cost-effective: total costs of 15 million Euro as well as support funds by the federal government and the state enabled the follow-up investments of 160 million Euro. Meanwhile, apartments for around 750 people were constructed in the 'Water Town Povel' together with offices, shops, restaurants, doctor's offices and two senior citizens' homes.

Today, approx. 95 percent of the area called 'Water Town' is occupied and revived. The project received several awards, among others the 'best practice award' at the global settlement conference Habitat II in 1996 as well as the DIFA award 2002 for innovative urban planning and sustainable development.

Special development obstacles:

- Soil contamination which was hard to localise
- High demands on new design

Special success factors:

- Linkup of redevelopment and urban construction
- Cost-efficient contamination clean up
- General plans, consensus on step by step development in sections
- Cooperative project management
- Personal engagement
- Transparency and offensive public relations

Achievements of the investor:

- Almost entirely realized, completely utilized
- Redevelopment costs approx. 72 percent lower than conventional land filling
- High cost efficiency: 15 million € clean up costs, 160 million € private follow-up investments



Landmark Povel tower during and after redesign
(photos © city of Nordhorn)

New Demand through New Ideas

In many cases, the largest handicap of brownfield redevelopment are not the implementation problems but simply a lack of demand. This especially applies to regions with declining population, regions afflicted by structural changes like the east German federal states where nowadays over one million flats lie vacant. On the contrary new privately owned houses on rural land are still being constructed there. In Dresden, for example, 90 percent of the newly constructed houses are single family and semi-detached houses which is not an easy situation for brownfields in the inner city. But a current project in **Dresden** shows that brownfields in the inner city can be developed successfully even under these circumstances. Another project shows how suitable follow-up users were attracted despite the special circumstances of the locality of **Pferdsfeld Airfield**.

Example: Townhouse Project Dresden

Garden in the Front, Pub Row in the Back

It was a brownfield from World War II - a site enclosed by dense block buildings at Bischofsweg in the outer new town. There had already been two unsuccessful attempts to construct loft apartments on the 4,160-m² brownfield.

Then in 2001 the project designer Thomas Klahn from Dresden and the architectural office Thomas Knerer thought: "If so many young people want to build their house outside of the city, why shouldn't this be possible here as well?"



Townhouse at Bischofsweg: green living in a Wilhelminian style area (photo: © TKG Projektentwicklungsgesellschaft mbH)

Klahn advertised the idea in the real estate adverts in the newspaper to test the demand: "Home in the new town with garden, 5 rooms, only 200,000 Euro". A number of interested people responded promptly and were invited to a joint meeting. They compared their ideas and wishes with the previously developed plans during a planning workshop.

At the end, nine builder-owners constructed a long stretched multi-family house consisting of flats in private ownership. With an exception of some special construction features the house is built as a row house. This solution enabled to go around costly and space-requiring construction regulations and planning directives, for example the changes in the land register and additional fire protection walls and openings, which would have rendered the project impossible due to the cramped conditions in the inner city.

Another feature of the design reduced the costs: the three-story "townhouses" are space-saving and keep the heating energy consumption low. Due to the old wall remnants and underground cables and pipes throughout the site, it was also decided not to construct costly basements and supply sheds on border of the property instead. Each family can use the interior of the building flexibly - whether it concerns the shape and location of the kitchen or living room, lodger flats or offices. The units can also be adapted to future requirements with lightweight construction walls and external staircases. The result came two years after the publication of the newspaper advert: individually designed and family-friendly homes for around 1,100 Euro per square meter of floor space - including 300 m² sites and all development costs.

Under the title "High quality - affordable costs", the "townhouse project received the GdW-BDA-DST builder-owner award 2004³⁷.

Special development obstacles:

- Oversupplied housing market
- High land prices compared to greenfields
- Unknown location of basement walls and old pipes and cables from previous use in the underground

Special success factors:

- Flexible plans coordinated with prospective buyers
- Space and cost-saving construction of residential property with garden
- Multi-family house design instead of several row houses
- Cooperation of the town administration

Achievements of the investor:

- Flats sold out at the start of the project already

4 Project Examples

Townhouses everywhere

The principle of constructing residential property with gardens on a small site is so far common and very successful in the same time only in the Netherlands and Great Britain. There are long waiting lists for prospective tenants interested in the inner-city townhouses. An investigation by the Federal Environmental office shows that a high residential quality in townhouses with gardens is also possible in Germany and it's typical high building density in the inner cities³⁸. Some brownfields in these inner cities have already been redeveloped into residential constructions in "western European" style. Another townhouse variant was constructed in Dresden, on the "Lukasareal" east of the central railway station: 39 row houses on sites of approx. 100 m² each, which also provide a roof terrace besides a garden, were constructed on a large brownfield in the inner city. Despite of comparatively low demand in this quarter, most townhouses have been sold by now. The "Wüstenrot Foundation" voted the Lukasareal in Dresden among the top ten from 600 German residential construction projects³⁹.



Lukasareal: with garden and sun terrace on the roof
(photo top: © Kälberer; right: © Petersen Immobilien GmbH)

"Rural residences" were also constructed on small sites on brownfields in other cities. In the city of Erkrath near Düsseldorf 51 residential properties were constructed by converting factory halls under monument protection and new constructions adapted to the old design on the premises of the former "Rheinische Buntpapierfabrik". Roof terraces and small gardens created a place in the sun despite the central location. The project which was realized without any public support funds received an award at the LBS-city arms competition in 2000. All units were sold during the planning and construction phase already and achieved excellent sales results⁴⁰.

Of course, this type of construction is not suited for all inner-city brownfields. However, these examples show that it can be well worth going new ways in order to find new uses for potentials waiting on brownfields.



It used to be a coloured paper factory: apartments in the historical building (photo: © DAS HAUS)



Example: Airfield Pferdsfeld

"Good idea is the key..."

In times of low demand, brown-fields can be attractive for commercial use if they have that certain something, which you cannot find on rural land. In these cases, the motto of the project development company Triwo AG is "good idea is the key".

The right idea was also the trigger for the re-regeneration of a former NATO airfield located at the edge of the Hunsrück highlands near Bad Kreuznach. These days, Opel cars are racing on the asphalt where military aircraft used to land until 1997. What would have aggravated many other redevelopment concepts was here seen as a special chance: more than one fifth of the 320-hectare property consists of transport infrastructure, among others a 3 km long runway is available.

Shortly after the soldiers left, the car manufacturer was already interested in using the asphalt surfaces as test drive tracks for its vehicles. However, only temporarily, because a permanent redevelopment of the property required substantial investments. The surrounding communities, which had established a planning community, were not able to purchase the property, make the corresponding pre-investments and take over the economic risk. Then the project development company Triwo AG purchased the premises in January 2003 after winning over the car manufacturer as permanent tenant. Opel AG wanted to use a half of the property as a test drive track and for a presentation of its vehicles. Subsequently, the state of Rhineland-Palatinate agreed to support the development of the property in terms of conversion measures with 40 million Euro which was approx. a half of the investment needed.



This also allowed to offer the remaining parts of the property at economic prices.

"...the rest is only work"

"The rest was only work", points out TRIWO Chairman Wilfried Biewer who did not see any obstacles in the following steps. A construction plan and an urban construction agreement was concluded between all project participants in order to develop the project site into an industrial area with the test grounds. In addition, the site was examined for contamination and possible environmental protection demands. An environmental compatibility check was also performed. A corrective action in terms of landscape compensation and restoring of environmental balance was realized via an especially simple option which was luckily possible on this location: previously sealed surfaces were renaturalized during the conversion and in this way the natural soil functions were restored. During this time a possibility of using the site as a test ground has attracted additional investors. The first vehicle construction and supply company settled in even before the completion of the planning process.

Special development obstacles:

- Very special previous use: an airfield, extensive airfield construction

Special success factors:

- Special future use as a test ground
- Unsealing as part of compensating measures for the environment

Achievements of the investor:

- Partially utilized, more companies attracted



Pferdsfeld airfield: take-off for test ideas (photo: © Triwo AG)

Image Revival through Temporary Use

A frequent problem that emerges during brownfield redevelopment is a **negative image of "contamination"**. Temporary use and its integration into a marketing strategy with a corresponding PR work are some of the possibilities of improving such an image. One nice example is a **Backfabrik Berlin**. The next example of **Rosensteinviertel Stuttgart** shows how temporary use can improve the "soft" location factor and the social environment with very little funds.

Example: Backfabrik Berlin

Temporary Use as Catalyst

There are many old factories in Berlin which were converted into new concepts. But the "Backfabrik" is famous. This is not due to its previous function of a central industrial bakery and it is not due to its present use with lofts and offices either. Much rather, the old name became a "brand name" because of the temporary use concepts applied on the spacious stories before its final conversion.

The building was left to young creative people with lots of ideas and little money for their projects. The rental contracts were limited to one year and could have been terminated monthly. This period of freedom lasted for three years and was used intensely for numerous activities: art studios, exhibitions, events and a skate park. The clubs "Casino" and "Cookies" attracted hundreds of people each week and large events took place in other halls for example a Love Parade parties with 8,000 ravers.

The Party goes on ...

The group of companies R.E.M.M., which purchased the property in February 2000, used the popularity of the location for their marketing strategy. They continued using a part of the building for events but under their own management.

Since then, these events have included panel discussions, designer fairs, concerts, art exhibitions or readings. Approx. 5,000 visitors came to the international comic festival Berlin in 2003, and the dance floors in the underground have been still crowded. Many events also took place during the 2-year reconstruction phase.



Prior to the conversion: a lot of space for parties

...new Users are Coming

While the visitors park their cars in a newly constructed underground garage in the evening, this car park is filled with the cars of the loft and office users in the remaining parts of the building during the daytime. Managing Director of R.E.M.M. attributes the fact that the numbers are constantly increasing to the property's popularity. Although many of the companies in media and IT sector which had originally intended to locate their businesses here failed to manifest after the breakdown of the New Economy, the entrepreneur concentrated on a mixed use instead. Fashion designers, an interior design studio and several catering enterprises are some examples.

"Normal" office users, like a lawyers, planning and consulting company and an industry association feel at home in the old factory.



After the conversion:
new events...



... new tenants (photo: © Heidi Scherm)

Special development obstacles:

- Low demand for lofts and offices

Special success factors:

- Commercial continuation of the temporary use; use for marketing

Achievements of the investor:

- Over 50% utilized
- First tenants as "anchor users" are advantageous for further marketing

Example: Rosensteinviertel Stuttgart

A Temporary Playground

Children and youths are playing and learning a bit about nature on an adventure playground on a brownfield where office buildings will soon rise into the sky in the north of Stuttgart. A mountain bike track lets youths test their skills, others play badminton or beach volleyball and children are playing on a mud playground or in self-constructed houses made of logs.

Offering legally and at least temporarily an unused site in a densely built-up quarter for kids is not only a concern of the town administration. A social boost of the surroundings was also in the interest of the property owner HVB Immobilien AG, who had already erected office buildings of the "Media Forum Stuttgart" on neighbouring brownfields and was waiting for more advantageous market situation for a brownfield site spanning over 13,500 m² in the inner city. However, the prerequisite was that the owner would not have to take over the liability risk of a brownfield used publicly. The city of Stuttgart overtook this liability and agreed on redevelopment with the HVB. Both parties may have terminated the contract at short notice, for example when the HVB would wanted to realize the construction project. They also made sure that all facilities were easy to dismantle in order to use them elsewhere.

Lots of Fun for Little Money

The costs were also within the limits: the HVB contributed 20,000 Euro for rough modelling of the landscape, fence around the site and information brochures. The city invested 35,000 Euro for volleyball court and other facilities, design of contractual regulations, insurance and safety monitoring. The users of the projects invested above all their muscular power: guided by an employee of the city administration, about 20 kids took up spades and shovels to shape the grounds for a mountain bike track. They also independently designed some other elements on the site like a wall for graffiti artists etc. The city of Stuttgart perceives this project which did not only turn out to be successful but also very cost-efficient as a model for temporary use of brownfields and also wants to entice other property owners to follow this example. Then the kids might be able to play on another site when their playground will be torn down one day.

Development obstacles:

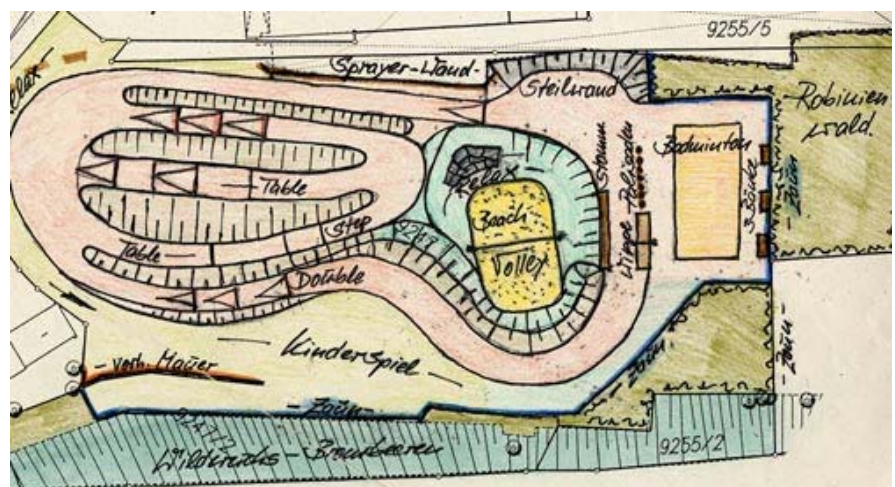
- Unfavourable real estate market at present

Special success factors:

- Uncomplicated temporary use at minimum costs
- Cooperation with the city and the residents

Achievements of the investor:

- The image of a "brownfield" was diminished
- Improvement of social environment
- Good relations with the town administration



Plan sketch for temporary use: an adventure playground which the kids helped to construct
© Project TERRENO GmbH & Co.KG

Additional Project Examples

Additional project examples of an improved use of brownfields in the inner city are portrayed on an **information platform for internal development** of the Institute for Urban Construction and State Planning. Approx. 109 examples describe numerous brownfield redevelopment projects. Links to additional information sources round off the presentation⁴¹.

The results of an analysis of 20 pilot projects from the research program "Experimenteller Wohnungs- und Städtebau" [Experimental Housing and Urban Construction] were published as **cross/analysis of ExWoSt pilot projects for brownfields redevelopment**" by the Federal Construction Ministry (ExWoSt). It introduces essential approaches, instruments, hindrances and success factors in all these projects³³.

The **Internet platform Werkstatt-Stadt** published by the Federal Office of Construction and Regional Planning introduces 98 innovative urban construction projects many of which are brownfields redevelopment projects. Many of these projects were also examined in the **cross/analysis**⁴².

Essential Success Factors

The following list contains methods for investors, builders, owners and real estate owners, which have turned out to be especially successful in the examples introduced in this brochure as well as in other projects.

- Establishing contacts with planning offices and the authorities in charge at an early stage
- Contacting experienced experts early
- Utilization of the know-how and ideas of external partners
- Careful investigation of the location and preliminary planning
- Consensus-oriented, cooperative and flexible planning process
- Project-related organization structure
- Public-private partnership for project realization, financing and marketing
- Continuous involvement of the community
- Coordination between site development and planning
- Contractual regulations about the handling of risks
- Framework plans, step-by-step consensus
- Personal engagement and power of decision of project managers
- Personnel continuity
- Offensive PR work
- Marketing under a new name
- Key projects and temporary use as marketing aids

5 - Methods and Instruments: Overcoming Revitalization Obstacles

The analyses of experiences from brownfield redevelopment project have resulted in some recommendable **methods** in the past years, which help to design projects more successfully and overcome problems typical for brownfields. In addition, a number of **instruments** of practical relevance are also available by now, for example manuals or databases. These methods and instruments concern very different fields of action and disciplines, for example project management, planning or the contamination cleanup. They are therefore geared towards very different groups of players.

In the following, we will introduce some of these methods and instruments. From a large number of available information sources. We have selected those of special interest for investors or owners of brownfields. This selection is by no means complete, as numerous additional instruments are currently being developed.

This information deals above all with typical handicaps of brownfields mentioned in the previous chapters. It concerns both problems of **project coordination** and **organization**, handling **contamination** and present **buildings** as well as **planning and marketing**.

Overview of the Essential Aspects

As brownfield redevelopment projects span across numerous fields of action, a summary of essential success factors can be helpful.

Check Lists for Brownfield redevelopment Projects

A check list for brownfield redevelopment in the Internet provides an overview of essential aspects which should be observed for a successful project realization⁴³. This list was published by the Federal Office of the Environment³². The fields of action listed from "F" to "K" are especially important for investors. There are points to be observed there, for example interdisciplinary control groups, consideration of ecological aspects for determining a value of the property and flexible redevelopment concepts for changes caused by unexpected problems with the property.



The building of the Federal Office of the Environment is also located on old plots. Photo: © L. Tietz

Project Coordination and Organization

A type of cooperation between project participants plays an especially important role in the implementation of the project.

Public-Private Partnership - Tips on Team Organization

Example:
Weststadt Essen

In many cases, a cooperation between private investors and public institutions is the best way to revitalize brownfields. Due to the lack of capital and in order to expand personnel and organizational possibilities, more and more cities and communities are willing to plan and finance recycling projects in cooperation with private companies. With PPP, private investors benefit from more efficient planning, easier approval procedures, additional possibilities to obtain support funds and joint marketing.

The analysis of projects realized in North-Rhine Westphalia by the German Institute of Urbanistik has shown that PPP accelerates many urban development projects or makes them possible at all⁴⁴. Among other things, it became clear that the earlier private partners are involved in the project procedures, and the faster the authorities remove procedural and investment obstacles, the better it goes. Lessons learned and attitudes changed were noticed on both sides as a result of the cooperation.

There are many different cooperation options. The spectrum ranges from simple contractual regulations, formation of joint ventures or real estate leasing companies to an establishment of public-private development companies. Composition and organization of the project team play a crucial role in the success of the project. The know-how of the project manager who has to meet many different challenges is especially decisive. He must be able to communicate and cooperate with the participants on all sides and his leadership role must be accepted by all parties involved.

A publication of the Federal Office for Construction and Regional Planning introduces **new types of public-private cooperation**, which also deal with the revitalization of brownfields. It deals with conditions required for a successful cooperation, types of institutionalization, criteria for the type of cooperation and procedural organization and financing⁴⁵.

The study "PPP in Public Construction" published by the Federal Construction Ministry also helps with the practical realization of construction projects. The guideline (volume I) makes it easier for decision-makers in politics and administration to benefit from public-private partnerships. But it is also helpful for all other persons investigating the option of PPP for a construction project. Volume III (profitability analysis) enables the determination of the most advantageous and economic procurement variant with an objective and transparent method under consideration of the entire project lifecycle⁴⁶.

Phase Concept - More Flexibility through Step-by-step Realization

One essential attribute of many brown-field redevelopment projects is the long duration from the project idea to successful real use. In this time changes can occur in the real estate market and elsewhere which mean additional investment risks. In order to be able to handle the project more flexibly during its development, we recommend splitting it up into project phases. This way, the time required for redevelopment measures can be defined for individual subsections. Income from earlier development phases can finance later development activities. And the successful development of the first project phase (anchor development) facilitates the marketing of the subsequent phases.

When designing a project, one should make sure that each module functions independently of the others and that the individual phases do not obstruct themselves when it comes to the realization of the project.

Examples:

Wasserstadt Povel, Nordhorn

Channel Hamburg

Weststadt Essen

Rosensteinviertel Stuttgart



Wörlitzer Bahnhof: new use by the Federal Ministry of the Environment (photo: © Rücker)

Support Programs for Brownfield redevelopment

Via support programs, the federal government, the federal states and the European Union provide funds for certain purposes directly or indirectly supporting the revitalization of brownfields.

This concerns above all:

- Marketing and redevelopment concepts,
- Urban planning,
- Detection of contamination and clean up,
- Demolition of buildings and facilities,
- Development,
- Building renovation,
- Assurance and project management as well as
- Real estate purchases and management.

Most urban construction support funds are provided by the federal states but the amount varies greatly from state to state. The real estate fund of the state of North-Rhine Westphalia is especially extensive. Indirect financial aid can also be of importance, e.g. in the shape of tax relieves which apply for example to industrial monuments, or programs for loans at special interest rates or the promotion of employment. It might also be possible to obtain funds in connection with the programs "Urban Conversion East" or "Urban Conversion West".

The combination of several instruments often makes sense. As some of the stated support funds are only granted to private investors or communities, a close cooperation between investors and public institutions is often the method to choose (public-private partnership).

Some the essential support programs are:

- EU European Structure Support: European fund for regional development (EFRD), joint initiative for urban sites (URBAN II), INTERREG III (joint initiative for trans-European cooperation)
- Joint tasks (JT) of the federal government and the federal states
- Contamination cleanup support programs and urban development support programs as well as additional special programs of the federal states
- Grants from the German Communal Transport Financing Act (GVFG)
- Loan program of the federal government: loans by Kreditanstalt für Wiederaufbau (KfW)
- Support for special purposes, e.g. the maintenance or write-off of monuments or the promotion of culture
- Research and development as well as demonstration projects

The "Guideline about financing options and aids for contamination removal and brownfields recycling" published by the Federal Office of the Environment provides an overview of public support programs by the EU, the federal government and the federal states along with financing strategies, legal aspects, public-private partnership models and insurance offers⁴⁷.

The manual for communities "Troop Withdrawal and Conversion in North-Rhine Westphalia" (part I) by the International Conversion Centre Bonn lists additional support funds⁴⁸.

The information contained in both publications was collected in 2000 and therefore is nowadays valid only in a part.



In the historical gas quarter: the Federal Office of the Environment in Dessau (photo: © Rücker)

Handling Contamination

Examples:

Wasserstadt Povel, Nordhorn
Industrial park Hoechst
Weststadt Essen

In principle, all sites previously used for industrial purposes are suspected to contamination. This also applies to former railway or military properties. However, this does not mean that the entire site is contaminated. In many cases, exact tests show that only a part of the site is contaminated or that there is no contamination at all. It is only possible to provide rough details about the presence and severity of contamination in Germany due to the varying statistical evaluation methods. Approx. 240,000 sites suspected of containing contamination were recorded in Germany so far. The risk assessment was concluded for approx. 40,000 of these sites. Of those, roughly one quarter contain contamination, meaning they require (further) decontamination measures or are subject to protection and limitation measures. Decontamination has been completed on about just as many sites.

In principle, the polluter is obligated to remediate the damage. If it is not possible to determine the polluter, the owner of the property is liable for the contamination. In order to speed up the decontamination and reactivation of brownfields public authorities often take over a part or all of the investigation and cleanup costs. A state development agency or a project development company may take over the contamination risk during the development of the site for example.

With the example Wasserstadt Povel in Nordhorn, we portrayed an unusually difficult contamination problem. With many revitalization projects, however, soil and groundwater contamination only plays a subordinate role. However, the **uncertainty** with respect to contamination risks may be an important investment hindrance. This does not only concern possible legal obligations but also financial risks, for example due to the necessary investigation and cleanup measures or because of delays caused by necessary measures. For this reason, it is recommended to **define the requirements in the contract** analogous to the example of the industrial park Hoechst. With the project Weststadt Essen in turn, additional expenses due to unexpected foundation remnants in the underground were refunded to the builder-owners or deducted from the purchase price.

Some of the technical methods applied in Nordhorn were the best available technology at the time. Meanwhile, they have become standard. For example, slightly contaminated soil could have only been deposited on-site and only in the scope of a pilot project. Today, depositing on site is generally possible in line with the soil protection laws, which were passed in the meantime. Today a consideration of bringing decontamination and construction measures together is a generally recommended practice.

In this way it is possible to agree on measures, extent and aim of the cleanup and covering of the costs in a **public-private decontamination contract** which was introduced by the federal soil protection act.

This legislation gives all parties involved more legal safety and speeds up approval processes. In this context, it is also possible to consider the demands of future redevelopment against the cleanup contract or a binding decontamination plan. Slightly contaminated material can be excavated and left on site as a **controlled deposit** and does not have to be disposed off as a waste, which may result in substantial cost savings. The limit values and quality standards required by this ordinance enable more legal and planning safety and an easier assessment of contamination and design cleanup levels.

Today we have systematic and largely standardized methods available for the detection of contamination and risk assessment. A "historical investigation" provides an overview of the risk resulting from previous use. In case of real suspicions, further investigations take place (orientation examination, detailed examination, decontamination examination) with technical investigations, e.g. drillings and chemical analyses. At the end of each examination phase, the persons in charge decide whether additional, more extensive measures are required. If possible, cleanup measures are planned and performed after this examination series.

Site-specific cleanup are possible these days in close coordination with the investigating authorities. These may include measures for microbiological or thermal soil treatment, groundwater cleaning or measures to prevent further transport of contaminants. It is still important to apply the measures necessary for investigation, assessment and cleanup of **contamination in right time** during the project. Good **coordination** of the cleanup measures with respect to **future redevelopment** also turns out to be an essential success factor.³²

Dealing with Buildings and Monument Protection

Examples:

Channel Hamburg

Weststadt Essen

Backfabrik Berlin

Wasserstadt Povel, Nordhorn

Former Rheinische Buntpapierfabrik Erkrath

Instruments for the Assessment of Contamination Risks

A brochure by the work committee of DECHEMA (Association for Chemical Technology and Biotechnology) provides an **overview of the risk associated with decontaminated or non-decontaminated contaminated sites**. It explains legal, economic and ecological risks, health risks, technical and psychosocial point of view as well as insurability in detail. Methods for risk assessment as well as strategy recommendations for owners and investors are also included⁴⁹.

Common methods for determining the market value of properties have deficits when it comes to brownfields. Even if they consider construction and legal aspects, they hardly take into account contamination. On the contrary environmental expertises are missing the assessment of the value reduction from the real estate point of view. The uncertainty caused by this lack of information may tempt investors to prefer objects without suspected contamination. With the **"Environmental Value Appraisal"** for assessing the **economic risk**, the Saxon State Environment and Geology Office introduces the methodological bases for determining the monetary value reduction on the basis of available risk assessments⁵⁰.

An essential feature of many brownfields are formerly used buildings. In many cases, these are outstanding architectural or historical buildings, partially under monument protection. These buildings may be of advantage for a project development, for example when used for project marketing as architectural landmarks or places for public events in temporary use projects. Just as often, however, these buildings are perceived as an obstacle for development, maybe due to possible contamination, uncertain construction suitability, directives on monument and fire protection or safety at work.

Due to increasingly sparser public funds for preservation measures, monument protection authorities increasingly accept and promote "sustainability through redevelopment" with private investments. Some key examples here introduced refer to certain buildings under monument protection, which were made available for new development concepts in the frame of consensus-oriented cooperation between the investors and the monument protection authorities. Among others they are the "Silo", and the "Kaispeicher Harburg" at Channel Hamburg, the "Colosseum" in Essen, the Povelturn in Nordhorn and the former Rheinische Buntpapierfabrik in Erkrath.

In terms of public-private joint projects **cultural use** of historical buildings turned out to be especially meaningful.

Contrary to residential or commercial use, the **restrictions** typical for historical buildings (monument protection requirements, state of the building in technical terms, contamination, conditions for planning or image of the location) are **no essential obstacles** for many cultural use projects.

Financing of cultural projects on brownfields have proven to be without problems to large extent. On the one hand, the investment and maintenance expenses are relatively low, on the other hand, there are many public support options available, which can often be combined.

Cultural use of historical buildings may be an **especially attractive factor for a project marketing**.

Above all in the regions undergoing a structural change, a smart combination of remarkable buildings with cultural activities often attracts great attention in the media and the public. enhanced **"soft location factor"**. is often also beneficial for a local and even a regional image.



Sometimes less is more (photo: © Kälberer)

Four publications by the Federal Institute of Construction and Applied Construction Damage Research may be helpful for assessing the redevelopment options of buildings and the respective costs⁵¹:

Costs and Benefits of Technical Building Examinations

"Aufwandsstufen bei Untersuchungen an Bauwerken" [Effort Stages in Building Investigations] provides information about the conception and assignment of constructional examinations on buildings for clients, architects and engineers. By practical examples, the brochure shows how to sensibly limit the extent of the investigation. Because the costs of the investigation measures and consequently affected construction measures are specified a cost-benefit comparisons are enabled.

Costs for a new use of Buildings

The publication "Kosten neuer Wohnungsnutzung in alten Gebäuden" [Costs of new Housing development in old Buildings] provides orientation values for the costs of residential space construction in old buildings. It is based on the systematic analysis of measures for the redevelopment of ten commercial buildings under monument protection.

The publication "Kosten von Bauserneuerungsmaßnahmen" [Costs of Building Renewal Measures] contains a collection of data about cost from the state building administration surveys on building renewal measures, especially for conversion measures. These empirical values can contribute to more precise cost estimates.

The publication "Commercial Courts or Apartments in old Factories" offers assistance with the assessment of the redevelopment possibilities for old factories. It portrays chances and problems of the redevelopment alternatives "residential" and "commercial", respective planning specifications, constructional demands and financing possibilities as well as estimates of the respective costs and yields. Both redevelopment alternatives are compared on two realized projects.

Tax Hints for Monument Owners

Tax allowances may be a substantial incentive for a preservation of historical buildings. The brochure "Steuertipps für Denkmalschutz" [Tax Hints for Monument Protection] published by the state of North-Rhine Westphalia provides information about the types of tax allowances for buildings under monument protection. It describes the deductible expenses for the purchase, preservation and maintenance of such buildings and demands of the tax and monument protection laws. It informs about assessed evaluation etc.⁵².



Backfabrik Berlin (photo: © Heidi Scherm)

Demand-oriented Planning and Marketing

Many obstacles also have to be overcome in planning and marketing of many brownfield redevelopment projects, for example due to a lack of real estate demand or a unfavourable image of "industrial brownfields". In the following, we will point out three methods, which have proven to be helpful in many projects - appropriate mixed use for the location, suitable planning instruments and temporary and anchor use.

Redevelopment Supplements

Examples:

Channel Hamburg
Wasserstadt Povel, Nordhorn
Townhouse project Dresden
Weststadt Essen
Backfabrik Berlin
(Industrial park Hoechst)

Especially brownfields close to the inner city offer good prerequisites for the development or supplementation of mixed quarters. These quarters already offer previously mentioned "soft location advantages". Present redevelopment on a brownfield site itself or in the neighbourhood may offer connection points, which facilitates development in the area. Thanks to the possibility to directly supplement existing structures in the quarter the brownfields projects bear less risks than completely new mixed use projects at the outskirts of the city. General conditions (location, real estate situation), the urban development concept and the implementation method are important factors for the success of mixed uses.

Experiences made with mixed uses so far were compiled in a publication with the title "**Chancen für Nutzungsmischung aus der Sicht von Investoren**" [Chances for Mixed use from an Investor's Point of View]⁵³. The research program "Experimenteller Wohnungs- und Städtebau" [Experimental Housing and Urban Construction] offers additional information⁵⁴.

Modern Planning Instruments

Examples:

Channel Hamburg
Weststadt Essen
Wasserstadt Povel, Nordhorn

The amendments of German Construction Law in the past years have enabled new planning instruments that aid brownfields revitalization. For example private companies can perform urban construction measures within an **urban construction contract** (e.g. soil decontamination) and save thus some of the costs, while other tasks (e.g. site allocation) are borne by the public authorities. The contract guarantees that the goals designed in the construction plans e.g. future use of the site and ecological compensation measures will be delivered. And that the project carrier can enjoy more legal and planning safety. It gives a community a chance to create necessary planning prerequisites for the construction development in relatively short time. With larger projects, it often makes sense to connect a **project-related construction plan** with an urban construction contract. Furthermore, a community can purchase a site, develop a construction plan, have the site developed by a developer and then resell it to the previous owner in the scope of an **urban construction or sanitation measure**.

Temporary and Anchor Uses

Examples:

Backfabrik Berlin
Rosensteinviertel Stuttgart

In the marketing of brownfields the measures which improve frequently negative image of the brownfield have proven to be very helpful.

Many times, an "**anchor user**" or a **key project** act as an attraction factor for further prospective investors. Therefore, one should first look for a representative tenant or buyer who can define a desired direction of the development. Extensive PR work is much more effective after this first step.

Than other sites can be marketed offensively. Examples for such pioneer users are the first tenants in the projects we have already introduced here: at Channel Hamburg and Nordhorn, in the musical theatre in Essen and on the test track at Pferdersfeld airfield.

If it is not possible to find any profitable use at first, it often makes sense to keep the location alive through **temporary use**. On the one hand, corresponding "social control" may counteract increasing dilapidation. This especially avoids the costs and risks caused by vandalism or illegal waste dumping. On the other hand, an informal "revival" may give the location a new and interesting image at relatively low expenses. This way, brownfields can be used as a location for cultural events, artist lofts or as sports or recreational sites without changing owners or the planning law. Such temporary use concepts can help to improve residential quality, especially in unattractive areas affected by structural changes. As an approach for further improving of the surroundings, this may in turn have a positive effect on the location as such. For example, in Berlin, the proximity to playgrounds in residential areas boosted the land values by up to 16 percent and lots of trees in the surroundings increased the real estate prices by 17 percent⁵⁵. Additional positive effects were observed when upgrading quarters by using brownfields in the inner cities as "green" spaces, for example a reduced crime rate⁵⁶. Many brownfields sites offer marketing advantages especially through temporary use and by being urban environment, which rural locations cannot offer.



"Südgelände" in Berlin, art and nature protection where trains used to ride
(photo: © Kälberer)

Property owners may also agree with the community on reduced financial obligations during the time of temporary use, for example with respect to rainwater charges or land tax.

Many owners have reserves to these rather unconventional ideas, for example when it comes to their liability obligations. However, specific contract options between property owners and temporary users have already been proven as effective. The Federal Office of Construction and Regional Planning refers to practical experiences in its publication "**Zwischennutzung und neue Freiflächen**" [Temporary Use and new open Spaces] and provides information about the implementation, legal questions and financing⁵⁷.

Overview of Additional Instruments

An overview of additional work tools is published on the website of the Institute for Water Construction at Stuttgart University. The **database for researching practice-oriented literature about brownfield redevelopment** is the result of the "Roadmap" project, which is supposed to communicate research results for practical application⁵⁸.

A Five-volume manual "**Handbuch Altlastensanierung und Flächenmanagement**" [Decontamination and site Management] describes methods to secure and clean contaminated land as well as recommendations for brownfield redevelopment. It deals with methods of PR, conflict solutions, marketing, financial assessment of ecological liabilities, urban construction conditions, financing options and legal questions of decontamination, etc.⁵⁹.



Development of Work Tools

The task of the European research project RESCUE is to learn from successful methods but also from previous mistakes. The Federal Office of the Environment was also involved in the research of economically feasible and lasting brownfield redevelopment projects, which were performed in such a way that they are successful for both the environment and society as well as for investors and other financial contributors. The results will be included in a **European manual for sustainable brownfield redevelopment** and in an online training program too (to be published in May 2005). Recommendations of more effective and supportive instruments were also prepared for the political decision-makers⁶⁰.

At present, the Federal Office of Construction and Regional Planning is preparing creative solution strategies which should help to get the brownfields in less attractive areas in suburban regions to real estate market. These will be used to develop a **player-oriented guideline for brownfields reactivation**, introducing case studies for subsequent redevelopment as well as financing possibilities.⁶¹

A compendium of time and cost-saving **technical methods for assessing contamination risks** on site by site basis for sites which were so far not or not sufficiently examined was compiled in the scope of the EU research project NORISC. Mainly geophysical assessment methods determined in this context are supposed to help to assess the future requirement for decontamination measures and redevelopment restrictions. The information obtained in this way can be recorded in brownfields registers or site passport / certificate and may be helpful for the management or marketing of brownfields.

At present, a computer-assisted guideline is being developed, which is supposed to facilitate the handling of brownfields for property owners, builder-owners and urban planners⁶².

Also, a database CONUS is currently being developed in order to simplify the **cost estimates for revitalization projects** and make them more reliable. A computer program will help to verify a project idea in early decision phases, even if there is not much information available about the location and interested parties have limited experience with redevelopment projects. The program comprises of standard measures for dismantling buildings and infrastructure on the property, unsealing as well as how to handle contamination and old munition and the necessary planning and preliminary investigation. The new instrument is based on the results of a research project by the Federal Office of the Environment⁶³, which served to clarify gaps in existing guidelines and clear up contradictions in regulations.

A decision to purchase or develop brownfields requires substantial information. If this information is missing or hard to obtain, brownfield redevelopment projects can be severely hindered. The so-called **site passport / certificate** is an instrument that makes a brownfield site more transparent and provides information for decision-making and planning available at any time. This document is supposed to contain essential information about the site, especially its potentials and risks, and should always be kept up to date. In general, it is supposed to cover the following issues: essential property data, evaluation and financing, economical type of the location, general construction conditions and restrictions like contamination or ground characteristics. The site certificate should be part of an electronic database or a brownfields' register (partially realized by the construction management Stuttgart, for example⁶⁴). This accelerates planning and approval process, improves safety of projects and facilitates comparison with other sites. At present, the Federal Office of the Environment is preparing recommendation for the exact design of site passports / certificates, especially the parameters to be recorded.

6 - Information Sources: Web Links and Literature

(Status of the publications in the Internet: January 2005)

This brochure is based on a large number of information sources. In the following, we will only refer to sources of special interest for investors, builder-owners or real estate owners.

Profitability of Area Recycling:

- 1 Basel II company rating: www.ax-net.de/inhalt/basel2/einleitungbasel2.htm
- 2 IAS/IFRS balancing: www.ax-net.de/inhalt/allgemein/ias_kuzform.htm
- 3 Information campaign "Close Future" www.nabu.de/m01/m10_01
- 4 Position Paper "Strategisches Flächenmanagement und Bodenwirtschaft"
(www.nachhaltigkeitsrat.de/service/download/dialog_flaeche/Positionspapier_Deutscher_Staedtetag.pdf)
- 4 Federal Agency Landesbausparkassen (Hrsg.) (2001): Wohnen auf Brachen - Documentation of the LBS-City Arms Competition 2000
- 6 Sustainability strategy of the federal government of 17 April 2002:
www.nachhaltigkeitsrat.de/n_strategie/strategie_2002/index.html
- 7 Tomerius, S.; Preuß, T (2001): Nachhaltige Ressourcenschonung - Flächenmanagement/-recycling: Aktuelle Hemmnisse und Lösungsansätze in den Städten. - Deutsches Institut für Urbanistik, Berlin
(www.difu.de/publikationen/difu-berichte/4_00/artikel7.shtml)
- 8 NBS - Nachhaltiges Bauflächenmanagement Stuttgart
- Project description: www.stuttgart.de/sde/item/gen/54825.htm
- Area Marketing: www.stuttgart-bauflaechen.de
- 9 Resident construction land register and construction land register at www.dresden.de - siehe "Themenstadtplan", column "Wohnungsbaustandorte"
- 10 Information brochure of the state of Brandenburg about building in the inner city:
www.literatur.mir.brandenburg.de/index.php
- 11 Model project regional commercial area pool Neckar-Alb
(Final report - brief summary): www.regionalverband-neckar-alb.de/downloads/ge-pool_kurzfass.pdf
- 12 Development concept for the reactivation of free town areas in Murgtal:
www.isl.uni-karlsruhe.de/wwwprojekte/murgtal2/set.html
- 13 Genial zentral - unser Haus in der Stadt: www.badlangensalza.de/fileadmin/genialzentral/genialzentral.htm
- 14 Communal area resources management Bavaria : www.stmugv.bayern.de/de/boden/flaech/flv3.htm
- 15 Results of the expert talk "Communal area resources management": www.ecologic.de/download/projekte/1800-1849/1828/Flaechenressourcenmanagement.pdf
- 16 Federal Office of the Environment (publ.) (2004): Reduzierung der Flächeninanspruchnahme durch Siedlung und Verkehr - Strategy paper of the Federal Office of the Environment; UBA texts 90/03, Erich Schmidt Verlag, Berlin.
- 17 Recommendations of the Sustainability Council:
www.nachhaltigkeitsrat.de/service/download/publikationen/broschueren/Broschuere_Flaechenempfehlung.pdf

Current Research Projects:

- 18 Cost-efficient survey of the brownfields stock in Thuringia : www.brachflaeche.de/Projekt.html
- 19 Siedlungsentwicklung und Infrastrukturfolgekosten - Bilanzierung und Strategieentwicklung:
www.bbr.bund.de/aufbau-ost/infrastruktur/19_projekt.html
- 20 Concerted Action on Brownfield and Economic Regeneration Network: www.cabernet.org.uk

Real Estate Industry Potentials:

- 21 Karin Wiest (2004): "Inseln des Aufstiegs in schrumpfenden ostdeutschen Stadtlandschaften" in: Forum Wohneigentum, volume 5, p. 262 - 265
- 22 Bernhard Müller, Stefan Siedentop (2004): "Wachstum und Schrumpfung in Deutschland - Trends, Perspektiven und Herausforderungen für die räumliche Planung und Entwicklung" in: Deutsche Zeitschrift für Kommunalwissenschaften, volume 1/2004.
- 23 Leibniz-Institut für Regionalentwicklung und Strukturplanung (2004), (article in "Die Welt" dated 27 Jan 2004: www.welt.de/data/2004/01/27/228782.html?prx=1)
- 24 Federal Office of Construction and Regional Planning (2003): Lebensbedingungen aus Bürgersicht: www.bbr.bund.de/veroeffentlichungen/berichte/band15.htm
- 25 DEMO 2001/09: Stadt als Wohnstandort: www.demo-online.de/article.php/iArtID/283 (login kostenlos)
- 26 Institute for State and City Development Research (2002): Demographische Entwicklung - Schrumpfende Stadt: www.ils.nrw.de/publik/pdf/demogr-entw.pdf (S. 11-13)
- 27 Investigation of migration motives by the city of Munich (2002): Raus aus der Stadt? www.muenchen.de/vip8/prod2/mde/_de/rubriken/Rathaus/75_plan/01_aktuell/02_projekte/s_u_wanderung/pdf/wanderungsmotivuntersuchung.pdf
- 28 Technical University Hamburg-Harburg (1998): Auswirkungen der Umlandwanderung auf den Hamburger Wohnungsmarkt (www.tu-harburg.de/stadtplanung/html/ab/ab_106/ag_2/downloads/umlandwanderung_lang.pdf, 3,1 MB)
- 29 LBS Norddeutsche Landesbausparkasse (1999) Wohnmobilität in der zweiten Lebenshälfte - Motive. Erwartungen. Potentiale; Hanover. (http://www.lbs-nord.de/PL6D/pl6d.htm?detail_snr=11&detail=1&snr=47)
- 30 Publications of the Institute Empirica about seniro citizen real estate and types of residences for the elderly (www.empirica-institut.de/cgi/litsrch.pl?searchstring=Seniorenimmobilien)
- 31 Publications of the Institute for State and City Development Research of the state of North-Rhine Westphalia (2001):
- Neue Entwicklungen beim Gewerbeflächenbedarf: www.ils.nrw.de/publik/sonder/gewerbebedarf.htm
- Zur aktuellen Gewerbeflächenpolitik. Anforderungen an künftige Gewerbeflächen: www.ils.nrw.de/publik/sonder/gewerbeflpol.htm

Evaluation of Area Recycling Projects:

- 32 Federl Office of the Environment (1999): Strategy recommendations for effective area recycling, UBA texts 10/2000 (www.umweltbundesamt.de/altlast/web1/berichte/recycl/recycl.html)
- 33 Federal Office of Construction and Regional Planning (publ.) (2004): Querauswertung von ExWoSt-Modellvorhaben zum Flächenrecycling (www.bbr.bund.de/exwost/pdf-files/Teil3_Querauswertung.pdf, 5,4 MB)
- 34 Member survey and strategy recommendations of the workgroup "Revitalisierung von Brachflächen" [Revitalization of Fallow Areas] in: Willmann Dr. W. et al (2004): Revitalisierung von Brachflächen als Aufgabe von public-private-partnership - Ein Fahrplan zur beschleunigten Wiedernutzung gewerblicher und industrieller Altflächen. Prepared by order of the South-Westphalian Chamber f Commerce and Industry, Iserlohn

Backround Information to the Project Examples in this Brochure:

- 35 ExWoSt-Forschungsfeld Städtebau und Wirtschaft: www.bbr.bund.de/exwost/forschungsfelder/015_staedtebau-wirtschaft.html
- 36 Werkstatt-Stadt presentation of Weststadt Essen: www.werkstatt-stadt.de/ipros/03_suche/detail.php?projekt=75
- 37 Townhouse project Bischofsweg, Dresden: www.stadthausprojekt.de
- 38 Wulf Hülsmann (2001): Potenziale und Strategien einer flächensparenden Siedlungsentwicklung (www.umweltdaten.de/rup/siedlungsentwicklung/huelsmann.pdf) as well as Federal Office of the Environment (2000): Szenarien und Potentiale einer nachhaltig flächensparenden und landschaftsschonenden Siedlungsentwicklung - UBA reports 1/00.
- 39 Lukasareal Dresden: www.lukasareal.de
- 40 Former colored paper factory Erkrath: www.content-immobilien.de/referenzen-berlin.html

Collection of Additional Project Examples:

- 41 Information portal "Innenentwicklung vor Außenentwicklung": www.isl.uni-karlsruhe.de/wwwprojekte/innenentwicklung/plattform/index.htm
- 42 Internet platform Werkstatt-Stadt: www.werkstatt-stadt.de

Helpful Methods and Instruments:

- 43 Questionnaire "Checkliste Flächenrecycling": www.umweltbundesamt.de/altlast/web1/berichte/recycl/recycl-10.5.html
- 44 German Institute for Urbanistics (1997): Public Private Partnership im Städtebau - Erfahrungen aus der kommunalen Praxis - acht Fallbeispiele aus nordrhein-westfälischen Städten, in: difu reports 1/97 (www.difu.de/archiv/Ber-97-1.pdf)
- 45 Federal Office of Construction and Regional Planning (publ.) (2002): Neue Kooperationsformen in der Stadtentwicklung - Werkstatt: Praxis volume 2., BBR (publ.) (www.bbr.bund.de/exwost/bestellservice/werkstatt_praxis_02-02.html)
- 46 PPP im öffentlichen Hochbau: www.ppp-bund.de/hochbau.htm
- 47 Federal Office of the Environment (2001): Ökonomische Aspekte der Altlastensanierung - Leitfaden über Finanzierungsmöglichkeiten und -hilfen in der Altlastenbearbeitung und im Brachflächenrecycling“ UBA texts 04/2001; (www.umweltbundesamt.de/altlast/web1/berichte/finanz/finanz.htm)
- 48 Manual of the Bonn International Center for Conversion: www.bicc.de/publications/other/handbuch/index.html
- 49 DECHEMA Gesellschaft für Chemische Technik und Biotechnologie (publ.)(2003): Bewertung verbleibender Risiken sanierter und nicht sanierter Standorte (www.dechema.de/60_2003_Risiken_Standorte.html)
- 50 Saxony State Office for Environment and Geology (2001): Marktorientierte Bewertung altlastenbehafteter Grundstücke - Materialien zur Altlastenbehandlung 2001 (www.umwelt.sachsen.de/lfug/veroeffentlichungen/verzeichnis/Abfall-Altlasten/SalfaWeb/salfaweb-nt/print/mza3_01.pdf)
- 51 Publications of the State Institute for Construction and applied Construction Damage Research : www.lb.nrw.de/publikation/intro_publikation.htm
 - C. Arendt (1992): Aufwandsstufen bei Untersuchungen an Bauwerken - Wirtschaftlichkeit bautechnischer Untersuchungen, Ziele, Struktur, Kosten, Fallbeispiele, volume 2.18, Aachen
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