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THE REMEDIATION OF CONTAMINATED SITES REMOVES BARRIERS TO INVESTMENTS AND PROMOTES ECONOMIC GROWTH

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The remediation of contaminated sites is a topic which is not only of ecological but also of economic interest for the quality of any business or industrial location. Old industrial and manufacturing installations, which frequently exhibit significant levels of contamination, lose all hope of economic perspectives for the future if measures for the long-term remediation of contamination are not implemented. From a regulatory perspective alone, the construction of new installations and buildings cannot be permitted on previously used real estate areas if soil and ground-water contaminants are not removed or measures for the aversion of potential danger for humans and the environment are not implemented. Furthermore, no serious or responsible investor would be willing to invest in real estate which, in and of itself, comprises ecological risks.

Even if an investor should decide to invest in a contaminated site, he or she or the company in question would, however, likely be unwilling to invest additional funds for the remediation of contaminated sites above and beyond the actual costs of the investment itself (purchase of real estate areas and construction of buildings and installations). If, however, this were to be expected of an investor, most investors would, if not specifically interested in a particular location or if not otherwise prompted to do so due to limited land availability, generally prefer to settle on so-called "greenfields", that is, newly established industrial parks on non-contaminated lands. For this reason, the purchase price which would otherwise be paid for a non-contaminated real-estate area suitable for building construction at a comparable location is the maximum amount which can be made available for the financing of the revitalization of contaminated sites.

In many instances of derelict industrial and manufacturing installations slated for revitalization, any purchase price calculated in this manner will not be adequate to cover the costs of revitalization. For this reason it will be necessary to take the use of public funding into consideration in the interests of revitalization and in order to avoid the use of large and previously unused real estate areas.

In this respect, exemption from liability for residual pollution and sources of financing for the remediation of contaminated sites represent a significant resource. Exemption from liability for residual pollution means that the costs for the implementation of requisite measures for the remediation of contaminated sites are borne in full or in large part by public authorities. A corresponding law which empowers the proper public authorities to exempt corporations and investors from liability for residual pollution has been enacted for eastern Germany. This exemption from liability makes it possible to offer corporations and investors who wish to use contaminated sites for business purposes conditions which preclude contamination from becoming a barrier for the development of real estate and businesses.

Exemption from liability for residual pollution does, however, not yet comprehensively ensure that ecological brownfields will not pose barriers to the economic development of a contaminated site. In addition to exemption from liability for residual pollution, efficient administration and organizational infrastructures are necessary to ensure the effective and prompt implementation of the remediation process and the proper use of public funding available to finance exemption from liability for residual pollution. The public authorities which have been entrusted with the responsibility of managing claims for exemption from liability must also be empowered to act, not only in order to be able to settle financial claims, but also in order to be able to rapidly eliminate the practical hurdles posed by the presence of contaminated sites and to ensure the efficient use of government funds.

A practical example - that of the situation in the Bitterfeld region – can give an indication of the dimensions posed by this problem for the State of Saxony-Anhalt in eastern Germany and for the ecological barriers to economic development created by contaminated sites there. Lignite was mined in the Bitterfeld region as early as the 18th century. In the 19th century, coal mining experienced a wave of significant intensification. Strip mining techniques were used to expose numerous coal pits, thus leading to permanent changes in the surrounding landscape. With the end of the 19th century the region saw the intensive build-up of the chemical industry. In total, a spectrum of nearly 5,000 different chemical products was manufactured in the Bitterfeld region. With the fall of the socialist planned economy, lignite strip mining activities ceased. Following the introduction of market economy structures in eastern Germany, the chemical pro-

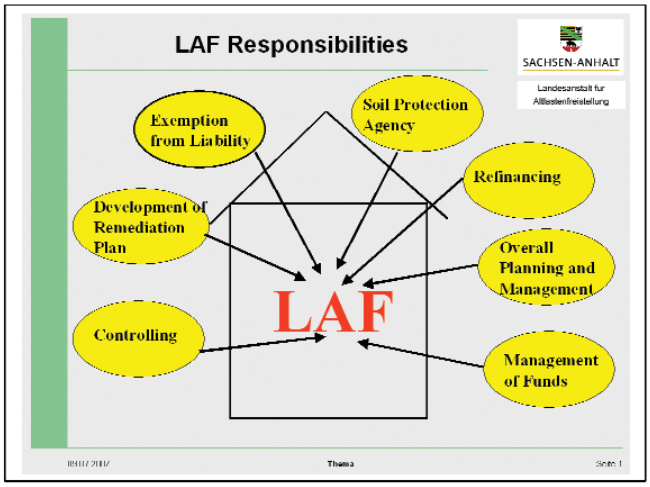
duction facilities in the region proved to be unproductive and unable to rise to competition within the marketplace. Production levels within large chemical corporations dropped dramatically. Directly after political and economic reunification in Germany, numerous installations were closed for economic, ecological and technological reasons in eastern Germany. Chemical production fell by as much as 70 %. More than 70 % of all jobs in this industrial branch were lost.

With the decline of the chemical industry, the extent of the ecological damage caused by this branch of industry became evident. 100 years of chemical production had not only led to significant levels of soil contamination but had, in particular, also resulted in large-scale ground-water pollution. In view of the far-reaching implications of the end of chemical production as it had existed before German reunification and the end of mining operations in the region, it would well have been conceivable to close the Bitterfeld site as a whole and to implement only safeguard measures in order to prevent any further expansion of ecological contamination. A political decision was, however, taken to retain Bitterfeld as a center for industrial chemical production in order to avoid the deindustrialization of the region. This meant that those institutions responsible for dealing with this situation were then confronted with the task of creating the corresponding framework for the successful implementation of solutions to the problem.

A first step in this process was to make use of options for exemption from liability for residual pollution and to transfer fiscal responsibility for the remediation process to governmental authorities. In a second step, the State of Saxony-Anhalt then created a central agency for the purpose of taking decisions concerning exemption from liability for residual pollution and implementing the remediation of contaminated sites in order to purposefully and efficiently manage the remediation process.

The Regional Agency for Site Decontamination (*Landesanstalt für Altlastenfreistellung*, also abbreviated as LAF) was founded in the year 2000 and has its core responsibilities in the overall oversight and management of sources of financing for the remediation of contaminated sites in addition to the task of exemption from liability for residual pollution. For the Bitterfeld site and all other sites in the State of Saxony-Anhalt which require the remediation of contamination this means that these problems have been able to be tackled on the basis of an integrated approach. The LAF deals with the ecological and legal as well as the pollution and financial aspects of the remediation of contaminated sites.

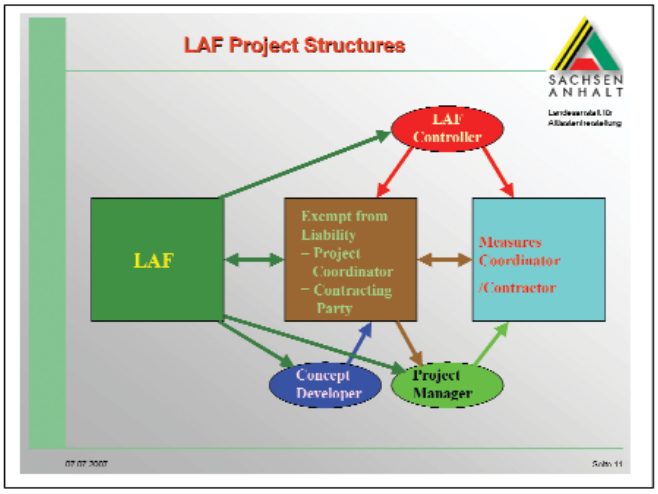
An integrated approach can best be achieved when all aspects of the tasks involved in reaching the ultimate goals are closely interrelated and when interfaces with other responsible authorities are kept to a minimum. This delegation of authority to the Regional Agency for Site Decontamination takes these factors into account. Exemption from liability for residual pollution, the development of remediation planning, the determination of remediation measures to be implemented, oversight of the implementation of remediation measures, refinancing as well as comprehensive financial planning are all tasks which are carried out by the Regional Agency for Site Decontamination. Furthermore, the responsibilities of a governmental soil protection agency are incumbent upon the Regional Agency for Site Decontamination. This is an additional and significant element for an integrated approach.



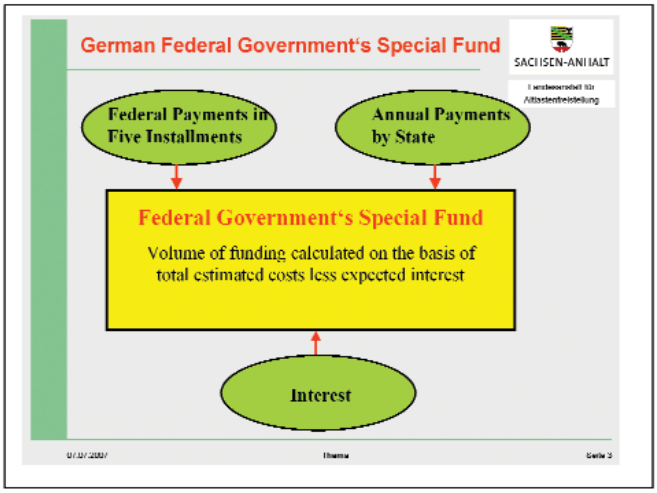
The division of responsibilities among various public authorities and agencies, which is to a certain extent the defining characteristic of governmental organizations, has been able to be avoided by and large.

On the basis of this comprehensive delegation of authority, the Regional Agency for Site Decontamination - as is also the case in Bitterfeld - implements the following measures for the remediation of contaminated sites:

Firstly, a planner is commissioned with the development of a conceptual framework for remediation. This conceptual framework outlines the corresponding financial framework and provides the foundation for the implementation of specific measures. The implementation of these measures is the responsibility of the project coordinator, who then awards the necessary contracts for the implementation of specific remediation measures. In general, the investor acts as project coordinator. Within the framework of large-scale remediation projects, in particular, as is the case for Bitterfeld, a large number of businesses and corporations have settled in real estate areas which require remediation over the course of several years. In order to ensure the uniform implementation of remediation measures, a general project coordinator is usually appointed for ground-water remediation. A controller appointed by the LAF oversees the project to ensure that the project coordinator and any contractors retained for the implementation of remediation measures act in accordance with the stipulations of the remediation plan and in a professionally and economically appropriate manner. At the end of this process, specific measures are then refinanced by the Regional Agency for Site Decontamination.



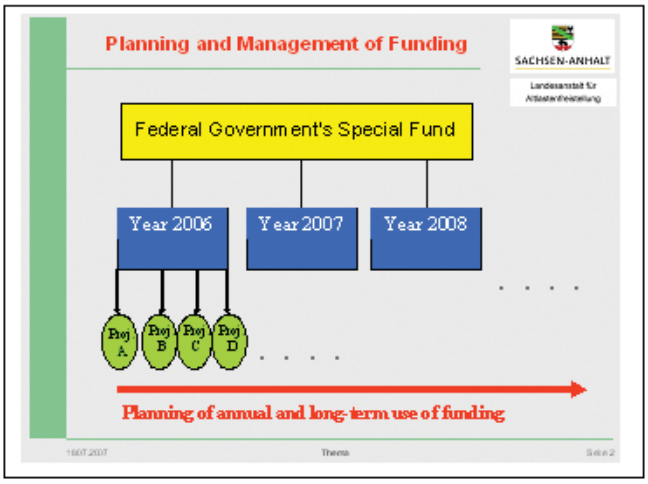
Funding for the remediation of contaminated sites for all remediation measures to be implemented in the State of Saxony-Anhalt on the basis of exemptions form liability for residual pollution is provided by a special fund which is managed independently of the budget of the State of Saxony-Anhalt. The formation of an independent fund ensures that the financial requirements for the remediation of contaminated sites can continue to be fulfilled far into the future. Due to the long-term nature of the remediation measures to be implemented and the fact that the ground-water remediation of individual contaminated sites, such as Bitterfeld, may take more than 70 years for completion, and since monies from the special fund will not be required immediately, these funds have been invested in the capital market. For this reason, anticipated generated interest income is included in the calculation of the required volume of special funds; that is, a discounted amount - reduced by the amount of future interest income generated - has been invested for future use. The costs for each individual project have been estimated in order to determine total funding needs. The conceptual framework



for the remediation of all of the individual contaminated sites as outlined above comprises the basis for this calculation.

The monies provided by the creation of the special fund for the remediation of contaminated sites are, ultimately, limited. This means that the overall cost situation must be taken into consideration during the planning phases for individual remediation projects as well as during the implementation of remediation measures.

The integrated management and control of the use of funds is essential. In this respect, the delegation of responsibility for integrated tasks to the LAF has proven to be particularly advantageous. Remediation planning and remediation measures as well as their chronological implementation can be integrated into available overall financial conceptual planning without time-consuming interface management.



The involvement of public authorities in the remediation of contaminated sites, as implemented in Saxony-Anhalt, has proven itself in practice. The example given by Saxony-Anhalt shows that the state-funded and -managed remediation of contaminated sites creates not only ecological but also economic benefits.

The use of public funding for the remediation of contaminated sites, in general without any reflux of capital through purchase prices paid by investors, is justifiable in view of the economic and ecological impact of the remediation and revitalization of contaminated sites. Jobs are created, investments are made and, at the same time, ecological hazards are eliminated as a result.

Of course, the use of public funding is justifiable only when the parties responsible for the contamination of brownfields can no longer be called upon to bear financial responsibility for their remediation. This is generally the case in eastern Germany, since the authority responsible for the state-owned economy, the German Democratic Republic, no longer exists. If, within the course of the privatization of the state-owned economy and of formerly state-owned real estate, attempts had been made to burden prospective investors with the costs of the remediation of contaminated sites, the

process of privatization would likely have been doomed to failure from the outset.

More than 650 million euros have been spent in Saxony-Anhalt since German reunification for projects involving the remediation of contaminated sites. Remediation measures have been implemented at seven industrial megasites and within the framework of more than 150 small-scale projects. The economic impact of these measures is evident in a number of new business and industrial sites at older locations previously used by the chemical industry, as well as in a significant number of smaller industrial and manufacturing installations. Examples are centers for industrial chemical production such as Bitterfeld and Leuna as well as projects such as an industrial park built on real estate areas no longer used by a rolling mill or the expansion of a car steering components production facility on a neighboring site previously occupied by a paint production facility. The cities of Bitterfeld and Leuna again comprise industrial sites which now employ more than 10,000 persons each in areas previously occupied by chemical combines. Without the remediation of contaminated sites and the assumption of ecological risks by public authorities these sites would not have enjoyed these opportunities for development.