



revitalising industrial sites

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Financing Techniques for Brownfield Regeneration - A practical guide

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FINANCING TECHNIQUES FOR BROWNFIELD REGENERATION

A PRACTICAL GUIDE

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1. INTRODUCTION

Brownfield revitalization offers great opportunities for structural economic change, but in most cases redevelopment does not take place spontaneously. The main reasons for reluctance to redevelop brownfield sites are:

- a. the possible risks brownfields entail, and
- b. the lack of knowledge concerning the way these risks (and the redevelopment at large) could be handled financially.

This guide deals with the latter issue. Starting from the (fact-based) presumption that brownfield revitalization is -in one stage of the whole process or another- always a matter of cooperation between the public sector and private parties, it first offers a discussion, in section 2, of the main benefits and costs involved in brownfield redevelopment, both from the public sector perspective and the perspective of private parties.

Section 3 analyses the difficulties (or market failures) involved in tapping into the major economic potential that brownfields represent.

Section 4 discusses four models of public-private cooperation in brownfield regeneration.

Section 5 first deals with some specific (financial) incentives to tip the balance in favour of brownfield redevelopment. These incentives can be used separately, but may also be part of more complicated financial arrangements, that are discussed in this section as well.

Section 6 discusses opportunities and obstacles in EU legislation and regulations pertinent to financing brownfield redevelopment.

To conclude, section 7 offers a checklist that can be used in decision-making on brownfield redevelopment. Where possible, the checklist refers to the previous pages/sections of the guide.



2. COSTS AND BENEFITS OF BROWNFIELD REVITALIZATION

Following Alker & Joy (2000) a brownfield site can be defined as any land or premises which has previously been used or developed and is not currently fully in use (it is partially occupied or utilised, or vacant or derelict). The previous use may have resulted in contamination of the site; there are real or perceived contamination problems. Therefore a brownfield site is not available for immediate beneficial use without intervention. Such beneficial use could involve any, or a combination, of the following options.

Main end use options of brownfields, after redevelopment

Residential area
Commercial and industrial land use
Retail trade and service industry
Recreational facilities

Costs

Brownfield redevelopment first involves all the usual costs relating to site (re-)development, but it faces special costs due to early-stage site assessment of contamination, remediation planning and direct costs of remediation (Bartsch & Wells, 2003).

An important characteristic of brownfield reclamation in that respect is that the reclamation costs are linked to the actual end use of the site. For example, recreational land use generally requires a different level of cleanness than industrial land use. Another characteristic is that reclamation costs are often hard to predict, as the actual state and location of contamination manifests itself only during the clearing-up process. These two characteristics taken together make it important to be flexible about the end use of the site and the exact arrangement of buildings and facilities, throughout the whole redevelopment process. Making (minor) changes to the site plan may result in much more cost-efficient reclamation.

In addition to these special costs, brownfield redevelopment involves typical financing costs because of the higher perceived risk associated with the project.

Another feature of brownfield sites is that they are often situated in developed urban areas. Compared to greenfield development, brownfield redevelopment can impose considerable externalities on neighbouring people and businesses, during a substantial period of time.

Benefits

A distinction must be made here between:

- economic and social benefits for society at large;
- financial benefits for specific economic actors, i.e. commercial benefits for private parties and fiscal benefits for governments.

The occurrence of these benefits and their possible magnitude will depend on the exact type of redevelopment (residential, industrial et cetera) and on the base-line used (greenfield development as base-line, or no development as base-line)

Economic and social benefits (including environmental benefits)

Potential economic and social benefits from brownfield revitalization are numerous and include (De Sousa, 2000; NRTEE, 2003; RESCUE, 2005)

- protection of public health & safety, including protection of groundwater and soil;



- reduction of development pressure on greenfield sites (reduced urban sprawl);
- reduction in externalities from transportation (air pollution, congestion et cetera) due to reduction in commuter travel;
- maintenance of existing jobs and creation of new ones. This includes the direct and indirect safeguarding and/or creation of jobs by the remediation process itself (with a relatively high regional multiplier effect of the investment), the direct safeguarding and/or creation of jobs by the settlement of companies on the redeveloped site, the indirect safeguarding and/or creation of jobs by multiplier effects of these new settlements, and the indirect safeguarding and/or creation of jobs by increasing the attractiveness of the urban quarter involved;
- renewal of urban cores, elimination of socio-economic stigmas associated with living in the proximity of brownfield sites, access to affordable housing.

Fully exploiting the potential of particular brownfield sites for urban and regional economic development requires considerable fine-tuning of the specific brownfield based spatial development to the urban and/or regional economic strategy (RESCUE, 2005: 46-47). The latter analyses the competitiveness of regional economies and of regional location factors, identifies promising economic clusters, centres of excellence and growth, and derives strategic targets, instruments and initiatives for structural policy and economic promotion. Growth sectors are then assigned to main development areas, giving a special focus on internal spatial development i.e. on brownfield sites.

Commercial benefits

The main motivating factor for private stakeholders to get involved in brownfield redevelopment, is the profit that can be made by developing the site into an exploitable and marketable object or by directly selling the property after remediation. Put differently: the main commercial benefits are:

- cash-flow from economic objects (housing, offices, recreational facilities) on the redeveloped site (operating profits), and/or;
- yield from selling-off redeveloped property.

In some cases an additional motive is to divest liability risks/costs (De Sousa, 2000:839).

Although often it will be the private sector that reaps commercial benefits, such benefits can also be attained by the public sector if it is involved in property selling and/or economic exploitation after redevelopment.

Public fiscal benefits

In addition to possible commercial benefits for government, some of the benefits of brownfield redevelopment translate directly into positive financial effects for government:

- restoration and/or enhancement of the tax base of vacant and underutilized sites (increase in revenue from property tax, income taxes)
- increased utilization of existing hard (infrastructure) and soft public services (efficiency gains due to better dispersion of fixed costs, increase in revenue from user charges)
- revenue from development charges.



Table 1 gives an overview of the different types of benefits and costs.

Table 1: Private, fiscal and social costs & benefits

<i>Financial, private</i>	<i>Public, fiscal</i>	<i>Social</i>	
I Operating profits and/or yield from selling property +	II Operating profits and/or yield from selling property + fiscal benefits +	III Positive externalities of redevelopment	= TOTAL BENEFITS (I+II+III)
IV Redevelopment and remediation costs (borne by private sector) +	V Redevelopment and remediation costs (borne by public sector) +	VI Negative externalities of redevelopment (esp. on neighbouring people and businesses)	= TOTAL COSTS (IV+V+VI)



3. MARKET FAILURES IN BROWNFIELD REDEVELOPMENT

There is no such thing as a typical brownfield site. Brownfields are inherently varied in character, in terms of (CABERNET, 2005):

- location (which influences pressures for redevelopment, spatial design constraints, property market values et cetera);
- physical condition (derelict buildings, protected historic buildings, contamination, ground stability et cetera);
- other factors, such as accessibility of the site, fragmentation of the site et cetera.

Generally, if (financial) private benefits exceed costs (and profits are to be made), redevelopment will be rather unproblematic from the financial perspective. This is the type of projects that have been labelled *self-developing sites* (Börner, Paternoga & Ferber, 2000). These are sites with high property value and low reclamation costs that have their own dynamic development potential. In most cases the redevelopment implies an increase of the value of the site and there is no need for specific (public sector) intervention. These projects are –largely- private-driven. These sites are the A-category in the ABC model used within the CABERNET network, and are the top tier in the three-tier model used in the Canadian NRTEE framework (NRTEE, 2003: 5-6).

It is important to stress that (even a high level of) contamination as such does not stand in the way of involvement of private developers (De Sousa, 2000:840; Dixon, Pocock & Waters, 2005: 81). It is the balance of –expected- costs and –expected- benefits that is decisive. In table 1 these are sites where the benefits in cell I easily outweigh the costs in cell IV. As there will not be much reason for government involvement the redevelopment and remediation cost share of government in cell V can be kept low. Fiscal benefits (part of. cell II) as a result of private redevelopment will often be treated as windfall revenues for government. The commercial profits made by the private sector and the fiscal benefits may be used to mitigate the external costs for neighbouring people and businesses (cell VI), requiring a certain intervention from government, even if the project as such is private-driven.

Sites with a specific development potential but with significant risks of development (regarding costs of remediation costs and after-reclamation value), can be labelled the B-category or middle tier of *passive-developing sites* or *potential development sites*. The market value -after being cleaned-up- may be slightly above or slightly below the combined cost of clean-up and development. Special policy concepts in the shape of public-private partnerships are needed here for redevelopment to take place, aimed at risk sharing and co-ordinated planning and financing. Policy initiatives must be aimed at raising anticipated end-use values, reducing anticipated costs, or a combination of the two.

Category B is obviously the most intriguing and complicated type of brownfield sites. Is it possible for the public sector to significantly reduce financial costs for private parties (cell IV) and/or increase private benefits (cell I)? What is the effect of such intervention in terms of fiscal costs and benefits (cells V and II)? Does redevelopment now turn out to be positive, for all parties concerned? In essence, public intervention in the case of these sites is about juggling with various opportunities for cooperation in redevelopment and about financial cross-fertilization.

Lastly, there are *non-developing* or *reserve sites*. These are sites without development potential at least during the foreseeable future: the C-category or bottom tier of sites. Some of these sites require (public-driven) reclamation and interim management for ecological,



environmental or safety reasons. This is about tackling the main opportunity costs of non-redevelopment by a minimum amount of remediation (cell III, partly \leq costs in cell V).

This distinction between these three different types of brownfield sites is depicted in the two figures below.

Figure 1: ABC model of sites, land value after reclamation in relation to reclamation costs

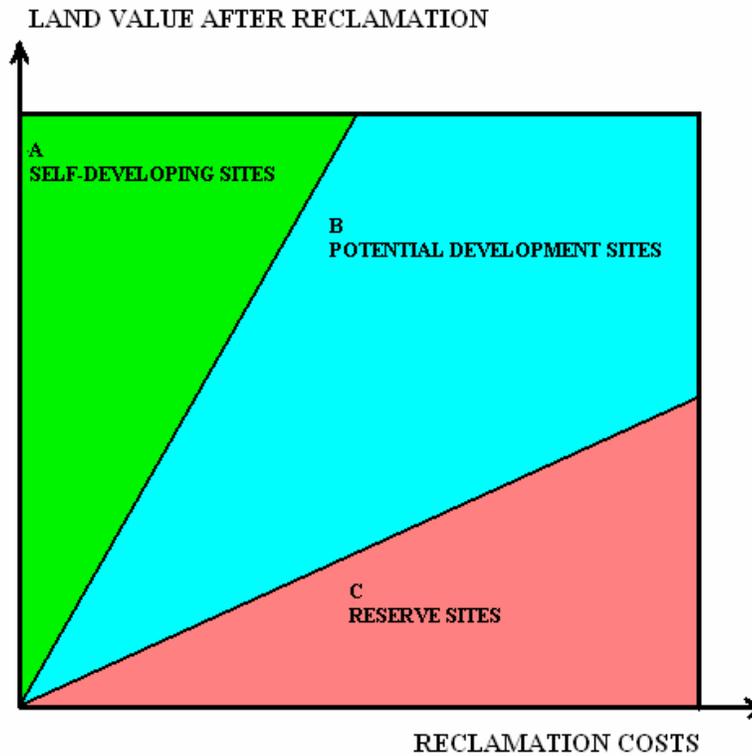
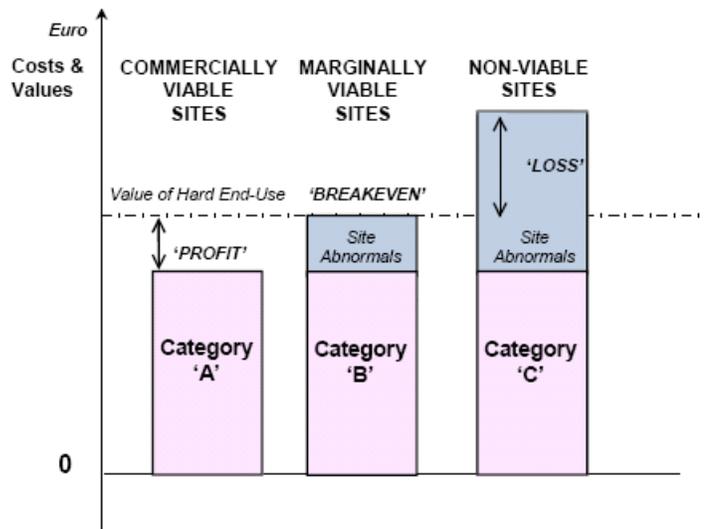




Figure 2: Viability of brownfield sites
CABERNET 'ABC Model' of Brownfield Land Commercial Viability



The “site abnormals” figure 2 relates to mainly have to do with the basic problem mentioned earlier: high remediation costs which may also be hard to estimate.

The “loss” depicted for category C could also be labelled the *non-profitable budget top*.

As a reference value to categorise sites, in figure 2 the value of hard end-use is depicted, i.e. the value of commercial and industrial land use after remediation. If there is soft end-use (like social housing), the dotted-line in figure 2 will drop and sites will move from the A-category to the B-category, respectively from the B- to the C-category. As was mentioned earlier, one of the problems in brownfield development is that end-use and remediation are intertwined. Decisions on end-use influence decisions on the remediation necessary, and vice versa. Remediation costs and end-use value are then also related. During redevelopment (especially during the first stages) a site that may initially be labelled a B-category site, may turn out to be an A-site or a C-site.

This mechanism stresses the importance of involvement of all stakeholders from stage one. If a site is re-mediated first by government with public funds and than offered to private investors for redevelopment according to predetermined and detailed land-use schemes, opportunities will be missed to adjust plans to insights and wishes of investors. If all parties are involved the difference (“profit”) between end-use value and remediation costs can be maximised.

In the remainder of this guide the focus will be on category B: sites that have potential but do not develop when left to the private sector, due to market failures. Market failures cause private developers to exclude social and environmental benefits, to undervalue commercial benefits and to overvalue costs, thereby restricting brownfield redevelopment (NRTEE, 2003: A-29 ff). In essence, two market failures dominate: externalities and uncertainty & risk.



Market failure 1: Externalities

Developers tend to have a narrow perception of the benefits of brownfield redevelopment as they focus solely on their own financial interests (cells I and IV). Private markets fail to capture *collective benefits* such as environmental benefits, improved neighbourhoods, preserved wetlands and greenfields, and public health impacts (cell III). Moreover, on the societal level, increased brownfield remediation will eventually result in cheaper remediation (as volume increases, economies of scale will occur due to specialisation), but is not likely that individual developers will be interested in contributing to that –long-term- effect.

Redevelopment may also generate *benefits for other private sector parties*. First, brownfield redevelopment increases the ability of other firms to produce wealth. These third-party wealth and income impacts sometimes result in increased property values of neighbouring commercial and residential property, and in increased value of neighbouring brownfield sites. Secondly, brownfield redevelopment has a cost-saving effect for third parties in terms of more efficient use of existing infrastructure, transportation and municipal services.

As long as these positive impacts on third parties and on society at large are not (partly) passed on to the parties bearing the development costs (i.e. are not fully internalised), a less than optimal amount of redevelopment will take place. Put differently: **equitable cost- and profit-sharing arrangements** among all stakeholders, **including internalization of externalities** are essential to redevelopment of B-sites. In terms of table 1:

- cells I, II, IV and V should be taken into account as a whole, and costs and benefits may be shifted from one cell to another in order to create a situation in which both public sector and private sector parties gain. For example, if we have a marginal site, and government is hardly involved in the redevelopment of that site, but it will enjoy tax increases after redevelopment, it can also bear part of the remediation costs, maybe tipping the balance in the direction of redevelopment;
- if necessary for redevelopment to take place, and if possible, benefits and costs in cells III and VI should be internalized. For example, if surrounding businesses that are not involved in the redevelopment (and do not bear any costs) are better off as a result of redevelopment, and they can be made to pay to the parties bearing the redevelopment costs (= internalization), such an arrangement would not only be more equitable, but may also make the difference between a site being redeveloped or not.

A prerequisite to making adequate cost- and profit-sharing arrangements is that all parties involved should have a general overview of costs and benefits, which is often problematic. This corresponds with the observation made by the brownfield redevelopment working group in CLARINET that redevelopment is composed of multiple cost elements, but that a general overview of the costs is generally lacking. Public and private project developers often cannot or do not provide transparent information about property prices, treatment cost and benefits. Budgets and funding are often restricted to individual parts of the project like decontamination, demolition or equipment and not integrated into the whole process, resulting in (partial) funding gaps and possibly in project failures.



Market failure 2: Inability to deal with uncertainty, risk & ignorance¹

The second market-failure is that risk-averse developers may undervalue their own commercial benefits and/or overvalue the costs of brownfield redevelopment.

In the case of brownfield redevelopment, apart from the normal risks associated with infrastructure projects (site risks, construction risks, operating risks, see USDT, 2004: 61-62), risk is reinforced by two specific issues:

- a. uncertainty regarding the impact of actual and acceptable contamination on redevelopment costs;
- b. uncertainty regarding (future) liability issues, and their impact on future land value.

As with externalities, all stakeholders involved in brownfield redevelopment should sufficiently deal with risk, by means of **equitable risk-sharing arrangements**, based on two essential “rules”:

- a) Risk should be allocated to the party that is best able to manage it.*
- b) Taking risks should be rewarded.*

From rule a) it follows for example that commercial risks should be allocated to commercial parties, and political risks to government. From rule b) it follows that risk-sharing arrangements have to be integrated into the cost- and profit sharing arrangements.

¹ Uncertainty, risk and ignorance are used here interchangeable. Strictly speaking, risk refers to a situation where the probability of different possible ‘states’ occurring is known, and uncertainty to a situation where these probabilities are not known. Ignorance refers to a situation in which (some) ‘states’ are not known.



4. FOUR MODELS OF PUBLIC-PRIVATE COOPERATION IN BROWNFIELD REDEVELOPMENT

Regarding the use of public-private partnerships in infrastructure projects it is common to distinguish between four basic phases in the development of these projects: Design (D), Finance (F), Build (B), and Operate (O, or: Maintain, M). Between each of these phases ownership can be transferred (T) from one party to another. The actual arrangement can then be denoted by the phases for which the private party is responsible, and the moment transfer of ownership takes place. Some examples are:

- DFBT: the private sector takes care of the full development of the infrastructure which is then transferred to the public sector (turnkey project);
- BOT: the private sector builds the infrastructure (designed and financed by the public sector), operates the infrastructure for a certain amount of time, after which the infrastructure is handed over to the public sector;
- F: private financing only (like the UK PFI projects).

If the private sector is involved in the operation of the infrastructure, often a system of concessions is used which makes it possible to let private parties compete from time to time. Concession fees (paid by government to the concessionaire) can be based on the availability and/or actual use of the infrastructure during the concession period (availability fee, user fee or mixed fee). In some cases of private financing (PFI) the actual use of infrastructure is used to (partly) determine the level of return payments made by government, putting part of the long-term project risk with the private financier.

A similar distinction between the different phases can be made in the case of brownfields, see table 2 (partly based on Deloitte, 2005). As was put forward before, ideally the activities in phases P, F, SD and RD should constitute an iterative process.

Table 2: The project chain in brownfield redevelopment

I	Initiative
P	Planning (including site assessment, initial design)
F	Financing of redevelopment
SD	Site development (clean-up, remediation)
RD	Real estate development (building)
Oc	Operation & maintenance of commercial end-use facilities
Op	Operation & maintenance of facilities in public domain (like public infrastructure)

Different forms of cooperation between the public and the private sector can now be distinguished.

First, there is *private development*. The private sector is in charge of the process throughout all stages, but assistance may be offered by government during the planning and financing stages. For B-sites such assistance is vitally important.

Second, there is (*traditional*) *public development*, in which private parties act only as buyer of redeveloped sites. The initiative to redevelop is taken by government, that plans, finances, takes care of remediation, and builds. Moreover, government remains firmly in charge of the operation of public facilities on the site.

Thirdly, there is *procurement & concession*. This development is publicly driven, but there is significant involvement of the private sector in the project by means of procurement of at



least one of the phases of the redevelopment. Private involvement can extend over almost all phases of the process, from design to building and/or operation. In the latter case a concession system can be used that can be based on the life cycle of the project (15-25 years). If all phases are incorporated the arrangements are called integrated contracts.

Finally, there are *alliances*. With procurement & concession private sector involvement can be major, but private parties still act as contractors. With alliances, there is equivalence between the parties involved.²

The difference between the Procurement & Concession model and the Alliance model corresponds to the two main types of public-private partnership (PPP) the European Commission has labeled *purely contractual PPPs* respectively *institutionalised PPPs*.³

The main differences between and similarities of these four models are represented in table 3.

Table 3: Four models of cooperation

<i>Stage/model</i>	I. Private development	II. Public development	III. Procurement & concession PPP	IV. PPP Alliance
Initiative	Private	Public	Public	Private, public
Planning	Private, with public assistance	Public	Possibly private	Private, public
Financing	Private, with public financial assistance	Public	Possibly private	Private, public
Site development	Private	Public	Possibly private	Private, public
Building	Private	Public	Possibly private	Private, public
Operating & maintenance (commercial facilities)	Private	Private, public	Possibly private	Private, public
Maintenance of public facilities	Public	Public	Public	Private, public

These four models are of course archetypical. In practice features of two or more models may be combined as the examples of the REVIT participants clearly show. For instance, within a public development the planning and financing may be a cooperation between the private and public sector, with the site development being taken care of by government, and building activities being procured to private parties. Alternatively, within a coalition model site development may be procured to a specialized remediation contractor. A further complication is that in some cases a semi-public (or public-private) body is in overall charge of the redevelopment. All in all, in all REVIT projects as in most brownfield redevelopment projects elements of the PPP Alliance model are clearly present.

² The further distinction between Alliances and Coalitions made in Deloitte Consultancy (2005) is not followed here, as Coalitions (where responsibilities are divided rather than shared) are simply a mix of the Private Development model and the Public Development model.

³ COM(2004) 327final.



Ten critical success factors for Procurement & Concession PPP (DFBM) and PPP Alliance project structures

Practical experience with PPP models (especially Procurement & Concession PPP, and PPP Alliance) for infrastructure and local (re)development projects in a number of EU countries, notably the Netherlands, has resulted in a number of *do-s and don't-s*. The ten critical success factors for PPP presented below are partly based on NABU & Norton Rose (2004), and have been adapted and rephrased where necessary, including insights from Ernst & Young Consulting (2000), Nijkamp, Rodenburg & Wagtendonk (2002), and Lange & McNeill (2004b).

Critical Success Factor 1 – All parties involved should have a clear idea of their own objectives and constraints regarding the project. They should know what they want, what they can do and what they cannot do.

Critical Success Factor 2 – When choosing a PPP structure for a particular project, it is necessary to have acquired a sufficient degree of insight in the (reasonable) expectations as to which extent the private-public cooperation can add value, in relation to other, more traditional contract forms (private development, public development).

Critical Success Factor 3 – The public authorities that are involved in the preparation, procurement (tender) and/or execution of a project, should, before procuring (parts of) the project, have formed a “public consortium” which includes proper agreements as to project organisation, authority, mandates, delegation, financing and the required authorisation, zoning and planning, in order to prevent discords between different public bodies in later project phases. They should “get their act together” beforehand.

Critical Success Factor 4 – The earlier the private sector will be involved in the preparation of a particular project, the greater the chance for success.

Critical Success Factor 5 – Selection of private parties should be based on competition as much as possible. A diligently executed market consultation increases the chance for success for a project. The overall number of parties involved should be minimised. Involvement of parties can be limited to certain phases of the project-chain on a “need-to-participate”-basis.

Critical Success Factor 6 – Involvement of neighbouring citizens and businesses is important, but asks for specific arrangements rather than becoming “part of the consortium”.

Critical Success Factor 7 – When selecting the most suitable PPP parties, it is more important to focus on their ability to manage the disciplines required for that project than the ability to execute the various tasks itself. A PPP contractor should be selected on its ability to manage the process and the inherent risks.

Critical Success Factor 8 – For success of PPP projects the involvement of institutions such as the European Investment Bank (EIB) is a must. The initiative and planning phases should provide sufficient time and opportunity to involve such institutions.

Critical Success Factor 9 - The scope of a PPP-project should be of relevant enough size to justify the upfront investments in terms of transaction costs. The scope should be sufficient for such projects to be managed effectively.

Critical Success Factor 10 – The composition of and the culture within the teams involved in a project are a crucial factor for the successful completion of that project.



5. FINANCIAL INCENTIVES & FINANCING TECHNIQUES

Financial incentives (A.-G.)

Before going into some more complicated cost-, profit- and risk-sharing arrangements that may be used in public-private partnerships dealing with brownfield redevelopment, some specific financial incentives are discussed in this section. Such incentives may be part of more complicated arrangements, but could also be used separately, to tip the balance in favour of brownfield redevelopment.

All of these incentives are what CABERNET calls market enhancements (CABERNET, 2005: 5ff) rather than market replacements. Market enhancements involve public agencies improving the working of the market by sharing, or modifying, the costs and/or risks faced by the private sector or by taking steps to enhance the market values likely to be achieved.

Generally, such incentives are financial mechanisms that motivate, underpin or compel sustainable practices, and/or inhibit, restrain or eliminate unsustainable practices in redevelopment (RESCUE, 2005: 111). As policy tools such incentives should be applied uniformly (create a level playing field, avoid distortion of competition), should be reliable in terms of their capacity to deliver (effective, sufficient to facilitate achievement of the objectives they are designed to target) and should be easy to administer. An important question here is whether instruments can be used discretionary or not. Often instruments like subsidies and tax incentives do not only benefit the target-group of marginally viable projects but also projects that do not really need the incentives (A-sites/tier I sites). Discretionary use of specific incentives (i.e. project-specific, on an as-needed basis) is more effective, but involves much more administration. See NRTEE (2003: table A5-1) for an assessment of the effectiveness of various instruments.

As yet, there are no best practice examples of such incentives in Europe for sustainable brownfield regeneration (RESCUE, 2005: 124). The little research that has been done on financial incentives for brownfield redevelopment (Adams et al., 2000) shows that plugging the financial gap and aiding cash-flow, by means of subsidies and tax relief, can be effective. Generally, carrots are deemed to be more effective than sticks. Research done in the US (Alberini et al., 2005) suggests that direct financial incentives (subsidies, tax credits) are especially relatively effective in the case of developers that have prior experience with brownfield development. Liability relief is favoured by inexperienced developers.

Moreover, it has been shown (Lange & McNeil, 2004a) that financial incentives should not (only) be directed at the environmental side of brownfield redevelopment (cleaning-up the site) but also at other factors that are not specific to brownfield redevelopment and may well play an important part, like land use possibilities, infrastructure close to the site, and political support. This corresponds to the outcomes of research done by Nijkamp et al. (2002), who show that procedural factors are just as often the cause of stagnation in brownfield redevelopment as finances, with ownership issues being the third important factor.

A. Cash grants

Cash grants can be used to deal with specific costs, like in the case of contamination assessment grants, remediation grants, grants for project support et cetera.

Cash grants can also be used for “gap funding”. Such grant aid addresses the private sector cost-value gap. Gap funding has the advantage that only those projects that can demonstrate a need for assistance to become commercially viable actually receive assistance; those that are already viable do not. Case-by-case economic appraisals of the direct and indirect effects of



the proposed project seeking grant aid can be used to determine the maximum level of grant commensurate with public benefit, or to minimise any displacement effects

B. Loans

Providing capital on less than commercial terms ('soft' loans) is another way of reducing the funding gap. The advantages of such loans over commercial loans could involve interest rates, pay-back period and pay-back conditions, including the use of forgivable loans (capital grants or grants *à fonds perdu*).

C. Tax incentives

Tax incentives could help promote brownfield redevelopment by providing a cash-flow cushion for developers, which makes the project numbers work. Such tax incentives can take a number of forms: rate reductions, tax exemptions, tax abatements, tax credits, grace periods and tax forgiveness. As with subsidies they can be directed at specific financial aspects of redevelopment activities: assessment costs, clean-up costs, costs of historical rehabilitation, loan costs, creation of funds for future liability, development of low-income housing et cetera. An example of a tax incentive for brownfield redevelopment is tax expensing of clean-up costs (i.e. enabling taxpayers to deduct environmental clean-up costs in the year(s) of the actual clean-up rather than capitalise them over time). Another example are low-income housing tax credits, which has a positive impact on the possibility to redevelop brownfield sites for residential purposes.

One of the problems with tax incentives is that brownfield redevelopment is in the direct interest of local and regional authorities that often have a relatively small amount of tax autonomy. Involvement of national government is then required.

Tax incentives can also be used as stick rather than carrot, for example by introducing a vacant land tax or a tax on the development of greenfields. The revenue of these taxes can be earmarked for the use of carrots.

D. Risk insurance & relief

Increasingly private insurance companies offer insurance products for brownfield redevelopment. These products include:

- stop-loss-policy (for remediation phase). The insurance company pays for on-site remediation costs overruns above and beyond a certain threshold. This allows the party undertaking the remediation to cap or fix the costs prior to remediation (clean-up cost-cap insurance);
- post-remediation-policy (post-remediation phase). Coverage deals with additional costs if further remediation must be performed (unknown contamination and/or new conditions) and/or third party claims must be honoured (tort claims). This can include off-site clean-up costs that result from migrating pollution.

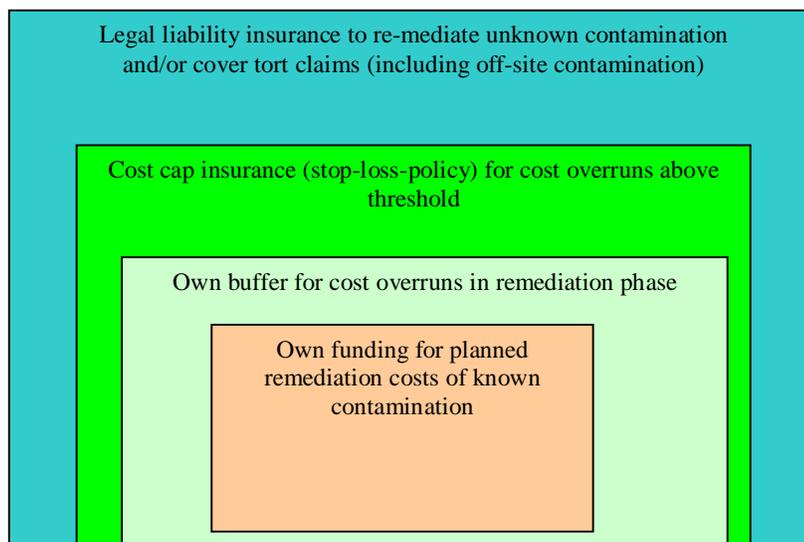
Market failure can result in the absence of these specific insurance products as such, or in too high premiums and/or insufficient coverage, due to the phenomenons of adverse selection and moral hazard. Government can take two types of action:

- regulating the insurance sector;
- offering insurance itself.



Figure 3 shows a private brownfield redeveloper's typical risk-handling structure.

Figure 3: Risk handling structure for remediation cost overruns and unknown contamination



Apart from securing or offering sufficient risk insurance, government can try to smartly deal with risks issues in its capacity as project initiator or regulator. One example is to issue sites in package deals to equalize profitable and non-profitable sites. This could be a package of different brownfield sites, but also a package of brownfield and greenfield site. The important thing is to make a combine two different risk profiles.

Another possibility is for government (or rather the project consortium at large) to make sure that there is a sufficient general buffer available. A general financial package deal agreed in the initial stages of project development, should include an agreed allowance for variations in cost because of uncertainties at the outset (a "contingency sum"). This would provide a long-term basis for planning the project and would ensure that each phase of development will not be delayed by shortfalls in resources.

E. Liability relief

Liability issues are often subject to national legislation which varies across EU countries. It is however possible through individual project agreements for local governments to assume liability for future risks once given remediation requirements are met, and provided that the end-use of the site does not change, as unanticipated changes in end-use can result in unacceptable exposure to contamination. Using the right institutional controls (ranging from covenants to contracts to permits) to prevent such changes is not only in the public interest but also clarifies liability.

If future liability is taken over by government the outer part of the risk structure in figure 3 would change from private insurance to public risk-taking. This could however still involve recurrent premiums to be paid by developers/owners or a lump-sum to be paid to government upon assumption by government of liability.



F. Capital attraction incentives

Successful brownfield redevelopment involves recognition and relief of private lender and developer financial concerns. Grants and tax incentives will generally improve the financial standing of the project, improving loan conditions. Liability relief measures can increase the value of the site as collateral, especially if transfer of future liability to government does also apply to lenders that have to take over brownfield sites after mortgage defaults. Still, specific incentives to attract private capital may be needed. A number of possibilities exist:

- loan guarantees (ensuring a minimum return for the lender);
- companion loans (showing that government is willing to take risk);
- subordinated loan agreements by government;
- subsidising interest payments;
- offering assistance or information that provides comfort to investors/lenders, and that can reduce underwriting and documentation costs;

G. Planning & land assembly assistance

Various measures exist that can assist private brownfield redevelopers:

- governments can take area-based initiatives (e.g. improving infrastructure or changing the planning status of the sites);
- governments may want to offer their expertise to private site developers;
- governments can get involved in land assembly and title clearance activities (e.g. compulsory purchase of land from the existing owner) to improve ownership status of the site (e.g. reducing ownership fragmentation).

This list could be extended with other examples; the important thing here is to be creative. Governments can take no-cost or low-cost initiatives that can really make a difference.

Because of the great diversity in brownfield sites, there is no single “best” local approach when it comes to applying the various financial incentives. Every site will require its own mix-and-match approach to make the most effective use of incentives, often involving a range of governments (EU, central, regional, local) and private parties (developers, consultancies, banks, housing associations et cetera). See Bartsch & Wells (2003, 2005) for numerous examples of the mixed use of instruments in the US.

Financing techniques (AA.-EE.)

Below some more complicated financing techniques are discussed.

AA. Tax Increment Financing

Tax Increment Financing (TIF) has been used in the US for a variety of economic revitalisation efforts (Bartsch & Wells, 2003: 29).

TIF is built on the idea that a brownfield initiative will create new value and that this future value can be leveraged to finance some of the activities needed for redevelopment. Central to TIF is the anticipated growth in taxes the completed project will generate. As a first step government determines the property tax income from a TIF district (different taxes like corporate taxes or sales taxes could also be used). As investment in the TIF district increases and the tax base improves, tax revenues beyond the original base level —the increment— can be linked to these investments. This link can take any of the forms described above (cash grant, loan, planning assistance et cetera).



Obviously, there is lag between investment and tax increment. Subsidies, tax incentives, soft loans result in higher expenditure and/or lower revenue during redevelopment and higher tax revenue at a (much) later stage. Typically, TIF uses a 10-25 year time span. The costs of pre-financing can simply be borne by government, or can be by-passed by means of using TIF bonds, that are issued by (municipal) governments that use the tax increment to pay off the debt. These TIF bonds are issued for the specific purposes of the redevelopment: acquiring and preparing the site, upgrading utilities, streets, or parking facilities, and carrying out other necessary site improvements. Special purpose bonds such as TIF bonds can be an ideal tool for brownfield projects, and can be combined with other types of funding, such as grants or loans.

One of the main advantages of TIF is that all kinds of positive externalities can be captured and internalized. Setting up and managing TIF can however be complicated. It requires a high level of technical expertise. Moreover, actual tax increments may fall short of expectations, if the redevelopment project fails or its economic impact is less than expected.

TIF as it was described above is *project-specific*, with the tax increment of a specific redevelopment project being used to offset the project's investment. TIF can also be used as a *revolving TIF*, in which case the tax increment caused by an earlier project is used for investment in new projects.

BB. Revolving Loan Fund

A Revolving Loan Fund (RLF) is a fund that is formed with initial seed capital and then used to make "soft" loans for brownfield clean-up. The fund is replenished as loans are repaid, with the repayments that are ploughed back into the fund being used to make new loans for clean-up.

Governments can jump start a RLF by providing the initial seed capital, but large remediation contractors, private developers, and financial institutions can also be involved as initial financiers.

CC. Benefit sharing & claw-back

If public funding is offered to brownfield redevelopment, it is possible to impose claw-back provisions if actual costs are lower than expected, or if values are higher. The idea here is to make sure, through subsidies or other financial means, that private developers "get" the benefits they need, but to cream off "excess" benefits. Benefit-sharing is often used with subsidies but can also be used in the case of loans (with the level of repayments being determined by the level of benefits).

Benefit-sharing requires that a basic variable is chosen which clearly indicates the benefits the private developer has enjoyed due to the redevelopment. Such basic variable can be related to cash revenues, to profits or to values (for instance property value). Next, a benchmark should be chosen: if the basic variable exceeds the benchmark the claw-back mechanism is invoked. Subsequently benefit-sharing requires agreement on the actual amount that will be transferred back to government and the time horizon that is used.

DD. Development charges

Yet another way for the public sector to pick up the uplift in value due to specific redevelopment activities is the use of development charges, of which there are two main types (The Allen Consulting Group, 2003: 34):



- developer charge. Developers are asked to pay for their fair share of facilities and services which will be beneficial to their project. This charge is a “price” paid by the developer based on the user-pays-principle;
- cost impact mitigation payments. The developer is required to meet the costs arising from the unanticipated demands of the development or to compensate for the detrimental environmental effects of the project (polluter-pays-principle).

EE. Development gains taxes & Planning Gain Supplement

Development gains taxes are a mixture of Tax Increment Financing (TIF) and development charges. They are similar to TIF in that they are based on (expected) increases in property value. They have in common with developer charges that they are linked to specific events in the development process, for instance the granting of full planning permission. An example of a development gains tax is the proposed UK Planning Gain Supplement (HM Treasury, 2005).

As with most other instruments discussed in this section, with development gains taxes it is possible to differentiate between rates used for brownfield redevelopment and green development, to stimulate brownfield redevelopment.

FF. Integrated contracts

If PPP Procurement & Concession is chosen as the development model, the main financial instrument used will be contracting. If more than one stage of the project-chain is put in the hands of the same contractor, these contracts are called integrated contracts.

The important thing with PPP Procurement & Concession is to think of it in terms of services rather than products. The service-provider is supposed to deliver a well-defined output over a relatively long period of time. The service-provider takes a certain matter out of the hands of government. For this it expects to be paid a “handling” fee.

So far, experiences with DBFM contracts have largely been limited to larger infrastructural projects. Within that context, basically, three types of fee have been used (PPP Knowledge centre, 2003: 7-8):

- a. Availability fee. Most DBFM contracts involve a payment regime based on availability and performance. If only part of the infrastructure is available for use, the payment is reduced by an amount proportional to the non-availability. In extreme cases this may mean that no payment is made at all. Corrections for poor or substandard performance are often made by means of a penalty points system. In extreme cases, substandard performance may even lead to cancellation of the contract;
- b. User/consumer fee. The most obvious example is the use of tolls. By using tolls, the government can reduce the investment cost for the project –provided that the volume risk can be predicted with a reasonable degree of certainty. It is the degree to which the service-provider can generate revenues from a concession that determines the amount of additional government funding that is required to make the project viable;
- c. Mixed user fee. In the case of projects in which volume risks are a factor it is possible to share these risks. In such cases a ‘shadow toll’ can be levied. This is a system in which the government pays the service-provider a fee for every registered user of the infrastructure concerned. This can be done by introducing a mechanism whereby the risk of extremely low traffic volumes and the benefit of extremely high traffic flows can be shared between the project consortium and the government.

Translating these fees into integrated contracts for brownfield redevelopment requires some creativity and examples from real life are yet missing. However, there are some experiences



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with integrated services by remediation contractors. The idea here is to let remediation be done by a remediation contractor at a fixed clean-up price, with guaranteed full indemnification for future liabilities, as remediation contractors are in the position to optimally assess risks and can apply innovative remediation methods.

Integrated contracts can be used to capture the uplift in economic values after redevelopment by means of the concession mechanism, if operating and maintenance contracts are to be newly procured or renegotiated after a certain period of time. More generally, not selling land right out but maintaining a ground rent (lease) based on a percentage of the let-able rent achieved by the developer, can be a tool to capture the uplift in land value after the initial phases of development.



6. EU LEGISLATION & FINANCING BROWNFIELD REDEVELOPMENT

In general *EU environmental policies and legislation* have a significant impact on brownfield regeneration (Leny, Nathanail & Thornton, 2005: 207), especially through the following EU Thematic Strategies within the Sixth Environmental Action Plan:

- Strategy on Urban Environment (COM(2004)60 final), which directly encourages brownfield regeneration;
- Strategy on Soil Protection (COM(2003)179 final), which could promote brownfield regeneration on sites where the soil is contaminated;
- Strategy on Waste Prevention and Recycling (COM2003)301 final), to which the Waste Framework Directive is central. This Directive (as it has been amended from 1975 onwards) sets up a system for the coordinated management of waste within the Union. Part of this system is the Landfill Directive of 1999, which aims to prevent or reduce the negative effects on the environment of waste being landfilled. The Directive has led to the end of co-disposal of hazardous and municipal waste and requires pre-treatment of waste prior to disposal in a landfill (Leny, Nathanail & Thornton, 2005: 207). The readiness of the development industry to tackle contaminated sites could be threatened by the impact of the EU Landfill Directive (Dixon, Pocock & Waters, 2005: 79). The upside of the Landfill Directive is that –in the long run- it works as a financial incentive for the sustainable re-use of soil, but in the short run it increases redevelopment costs and could lower property value (Heasman, 2005) ;
- Strategy on the Sustainable Use of Resources (COM2003)572 final), which has only an indirect effect.

In addition to the above, the EU is itself involved in urban regeneration through its *URBAN programme* (a Community Initiative within the Structural Policies). In the period 2000-2006 financial assistance was offered to 70 area-based urban regeneration programmes throughout the EU(-15). The main priorities for URBAN include the physical re-development of brownfield sites.

State aid and regeneration guidelines were introduced by the Commission in 1996.⁴ These guidelines identified deprived urban areas eligible for state aid. However, in the past years, no Member State has made use of these guidelines as they were apparently found to be too restrictive and inflexible. The Commission has therefore decided, in 2002, that they should not apply in the future, and that the Commission will assess the issue on a case-by-case basis, following the general state-aid rules.⁵

These basic substantive rules on the control of state aid in the EU are set out in Article 87 of the EC Treaty. This article provides that state aid is in principle incompatible with the common market. Article 87(1) of the EC Treaty can be broken down into four tests to establish if a measure within an urban regeneration scheme constitutes state aid. A state aid will only be present if all four tests are met:

- a. Is the measure granted by the state or through state resources?
- b. Does the measure favour certain undertakings or the production of certain goods/services?
- c. Does the measure distort or have the potential to distort competition by selectively favouring certain beneficiaries?
- d. Does the measure produce an effect on intra-Community trade?

⁴ Guidelines on state aid for undertakings in deprived urban areas, OJ C 146, 14.5.1997, p. 6.

⁵ OJ C 119, 22.5.2002, p. 21.



The principle of incompatibility of state aid with the Treaty is not, however, absolute. Article 87(2) and Article 87(3) contain a number of exemptions under which state aid shall or may be considered compatible by the Commission. In exercising its discretionary powers for the application in particular of Article 87(3) exemption, the Commission balances the importance and the necessity of the aid measure in achieving a Community objective versus the distortion of competition brought about by it.

In its Vademecum of March 2006 (European Commission, 2006) the Commission has outlined the application of state aid provisions to regeneration. This Vademecum results from a consultation procedure on state aid in 2005, in which CABERNET participated (CABERNET, 2005). According to CABERNET in principle EU competition policy has the unintended effect of restricting the ability of member states to develop meaningful cooperation between the public and private sector to facilitate the regeneration of commercially non-viable sites. Such cooperation makes use of market enhancements rather than market displacement. Pursuit of market enhancements assists with the achievement, over time, of self-sustaining market activity, thereby avoiding the need for continued public sector interventions. Market displacement however involves public agencies taking over responsibility for dealing with problematic brownfield land. Under this scenario, the public sector acquires the problem site and takes full responsibility for its reuse, meeting the costs of remediation, developing the desired accommodation, letting to tenants and disposing of the development to the private sector. So long as all transactions are conducted at market value, no state aid is deemed to apply. But with market displacement the loss of the public sector is probably greater than the value of any grant made under a discretionary grant aid (or gap funding) scheme, as all costs (and not just the excess costs) have to be addressed by the public sector. The role of the private sector is reduced to that of a contractor to the public sector rather than that of a risk-sharing partner, resulting in insufficient exploitation of private sector expertise.

A similar counterproductive mechanism exists regarding the use of discretionary versus non-discretionary (financial) incentives. Discretionary measures attract Competition Policy attention but are more efficient than tax incentives which cannot readily be restricted solely to aid commercially non-viable projects. Discretionary measures involve greater financial transparency, due to case-by-case appraisal, and demonstration of site-specific non-viability. Unfortunately discretionary measures face increased concerns over state aid.

All in all, CABERNET has argued that public-private partnerships that have been designed to bridge the cost-value gap that often prevents the commercial regeneration of many marginally non-viable brownfield sites should be exempt (by means of a block exemption) from EU competition policy. This position has not been endorsed by the Commission.

Table 4 summarises briefly (based on the 2006 Vademecum) which regeneration measures do not involve state aid, which measures involve compatible state aid, and how the Commission deals with public-private partnerships for regeneration.⁶ In most cases regeneration measures do not involve state aid because they do not (have the potential to) distort trade between member states. In cases where regeneration involves compatible aid, member states have to show that the proposed measure is well-designed, proportional, and well-targeted.

⁶ See European Commission (2006) for more details and an overview of a large number of current Commission approved regeneration measures.



Table 4: Regenerations measures and state aid

<i>Regeneration measures which do not involve state aid</i>	<i>Regeneration measures which involve compatible state aid (Art. 87(c) and (d) EC Treaty)</i>	<i>Use of PPPs in regeneration</i>
Investment in infrastructure to improve physical environment	In cases where polluter of brownfield is not identified or cannot be made to bear the cost of clean-up, application of polluter-pays-principle may be replaced by subsidy scheme	The arrangements for financing the PPP may or may not result in a transfer of state aid to one or more of the private partners. State aid could be involved if there is over-compensation of the costs of the private partners (in which case the first two columns apply)
Renewal or upgrading of residential areas or properties	Coverage by aid of all additional heritage related costs in regeneration projects	For all types of PPPs, private partners must be chosen in accordance with EC rules on public procurement, where these rules apply. A properly conducted tender procedure will provide reasonable assurance that private partners will be remunerated in line with market conditions. In the absence of a tender procedure, the Commission will look at the detailed arrangements of the PPP and the safeguards put in place to avoid overcompensation in order to determine if state aid is involved
Making investment in brownfield sites more attractive than in greenfield sites	Training aid to promote social integration and employment	The contractual arrangements between the parties must be compatible with Community anti-trust rules (i.e. conditions in a PPP as regards the prices to be charged to consumers)
Measures to promote education, to assist families, to provide leisure, to fight crime et cetera	Aid to SMEs	Specific rules will be developed in the near future, differentiating between purely contractual PPPs and institutionalised PPPs (Procurement & Concession PPPs respectively PPP Alliances).
Measures to promote economic activity in deprived local urban areas	Aid to larger companies if aid takes place within assisted area (regional aid map) and within limits	



7. CHECKLIST

PART 1: CHOICE OF DEVELOPMENT MODEL AND COOPERATION ISSUES

<i>Step</i>	<i>Action</i>	<i>Explanation</i>	<i>See page(s)</i>
1	Identify all stakeholders	Identify land ownership Identify public authorities involved in redevelopment	14
2	Each stakeholder: Identify own objectives and constraints		14
3	Create a public consortium		14
4	Identify costs and benefits of redevelopment for the particular project, for each stakeholder	As costs and benefits will vary with end-use, it may be sensible to use 2-3 different variants No detailed costs/benefits estimates are necessary at this stage	4-6, table 1
5	Choose main development model	Choice between: - Private development - Public development - PPP Procurement & Concessions - PPP Alliance Often the choice between public and private development is easy. Take one of these models as starting point and ask whether PPP P&C or PPP Alliance could add value	13
6	Specify party involvement for each stage	For each stage of the project-chain, identify parties to be involved and identify other stakeholders Specify the type of involvement for each party (ally, possible contractor, other interested party)	14
7	Specify involvement of expert institutions	Like the EIB	14
8	Specify terms of reference for contracting		



PART 2: CHOICE OF FINANCIAL INCENTIVES & FINANCING TECHNIQUES

<i>Step</i>	<i>Action</i>	<i>Explanation</i>	<i>See page(s)</i>
9	Choose and specify main financial instruments	A. Cash grants (specific <> gap funding) B. Loans (and loan conditions) C. Tax incentives D. Risk insurance & relief E. Liability relief F. Capital attraction incentives G. Planning & land assembly assistance AA. Tax Increment Financing (TIF) BB. Revolving Loan Fund CC. Benefit sharing & claw-back DD. Development charges EE. Development gains taxes FF. Integrated contracts	Section 5
10	Identify (detailed) costs/benefits for all parties involved, including society at large		
11	Check equity of resulting cost/benefit sharing arrangement		
12	Identify risks and the way they are shared		
13	Check adequacy and equity of risk-sharing		
14	Repeat steps 5, 6, and 9 Repeat steps 10-13	If outcome of steps 11 and/or 13 is not satisfying	
15	Check compatibility with state aid regulations		24, table 4



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