

## **PART II**

### **II.2. A survey of methods**

Impact analysis

Cost-benefit analysis

Multi-criteria analysis

Other methods

### \* IMPACT ANALYSIS

120. Terminology : an effect is not an impact.

An **effect** is brought about by a causal element e.g. visiting a historic site gives satisfaction. The **impact** of that effect is that this satisfaction induces one to buy some books about the site, to come back another time, or to visit other similar sites. Thus contained in the word "impact" is the power to produce change. We could say that an impact is the "effect of an effect", or in other terms again, that the effect is an action while the impact is a reaction. It is this reaction that impact analysis wants to capture.

Effect measurement is then the assessment of all physical or material implications of the presence of a CBH (for example the number of visitors). In principle, effects can be measured in quantitative terms.

Impact measurement refers to any consequence of the effect, it is a translation of physical effects into an injection of human welfare (for instance more employment, more revenues..). Impacts are harder to quantify. They can be ventilated in costs and benefits.

Note that we can have a real chain of impacts : additional investment in conservation of the CBH has a significant effect on the quality of monuments, which in turn attracts more tourists, who have positive and negative impacts on the community.

121. Reasons for the complexity in impact identification.

The range of possible economic benefits attributable to the CBH is quite diverse. Benefits can be both **quantitative** and **qualitative**, and it is important not to think of them as opposites, hierarchically ranked, and mutually exclusive, but we should rather view qualitative analysis as a step toward quantitative analysis. From a qualitative point of view, impacts are either ordinal (more, less etc.), binary (yes/no), or nominal (classified by names). Quantitative measures can be commensurable (measurable) or incommensurable (they do not have a measure that is translatable in figures), monetary (in \$) or non monetary (e.g. number of employees). The "incommensurable" is an effect which may be noted but not quantifiable merely because research has not led us that far, while intangibles are not logically capable of being measured.

For instance, intangibles often attributed to preservation projects are improved aesthetics, reduction in density, neighbourhood cohesiveness

(stronger neighbourhood associations), reinforcement of community cohesiveness.

122. The basic methodology for impact analysis goes as follows :

- the identification of direct costs and benefits (affecting agent # 1), on site and directly linked to the presence of the CBH;
- the identification of indirect costs and benefits (concerning agent # 2) in the narrow impact area, with a careful evaluation of the proportion of the impact due to the CBH;
- the identification of induced costs and benefits (affecting agent # 3) in the larger impact area

Table 2 shows the distribution of these costs and benefits according to the categories of agents. The (+) sign indicates a benefit. The costs (-) are considered as negative benefits.

**Table 2. Distribution of impacts of the CBH according to the categories of agents**

Suppliers/Producers	Impact + or -	Demanders/ Consumers	Impact + or -
<b>Agents #1</b>			
Owner on site	+ Increase in real estate value - Maintenance costs + or - Taxes (1)	Resident owner	+ Increase in real estate value + or - Taxes (1) - Maintenance costs + Prestige + or - Quality of life (2) + or - Externalities (3)
Local authority on site	+ or - Taxable base - Maintenance costs + Prestige	Tenant on site	- Rent increase + Prestige + or - Quality of life (2) + or - Externalities (3)
Producer of CBH services on site	+ Visitor flows (+ receipts) + Prestige - Maintenance costs	Tourists/ Visitors CBH services users	+ Tourism (visit) + Services
<b>Agents #2</b>			
Owner off site	+ Increase in real estate value	Resident owner	+ Increase in real estate value + or - Externalities (3)
		Tenant off site	- Rent increase + Prestige + or - Quality of life (2) + or - Externalities (3)

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<b>Agents #2</b>			
Owner off site	+ Increase in real estate value	Tenant off site	+ Increase in real estate value + or - Externalities (3) - Rent increase + Prestige + or - Quality of life (2) + or Externalities

Producer of CBH services off site : - Guide, performing artist - Travel agency etc	+ Visitor flows (Receipts) + Employment + Visitor flows	+ Tourism + Services
<b>Agents #3</b> Employees of agents #1 et 2 Suppliers and caterers of agents #1 et 2 National economy	+ Employment + Sales + Multiplier effect	National citizens + Prestige (endowment effect) + CBH values (education, heritage...)

Inspired from LICHFIELD (1988).

(1) depends on the authorities' attitude towards the CBH (tax exemptions or not)

(2) a monument can be very uncomfortable to live in !

(3) Negative externalities : noise, pollution, parking problems... vs. positive externalities reduced transport costs, reduced police costs

The table presents a view of the numerous impacts on the various agents directly or indirectly concerned by the CBH.

Note that the table may not be exhaustive, as impacts are likely to vary according to the site studied, and as more qualitative impacts are only mentioned under the general labels "Prestige" or "Quality of life".

Needless to say, the more "indirect" or "induced" costs or benefits are, the more identification and evaluation of these impacts become difficult.

123. One of the most obvious difficulties with impact analysis is the **overestimation of the effects** due to the CBH : while the causal relationship between the CBH and agent # 1 is easily established in the case of direct effects on site, the danger lies in attributing the whole of indirect and induced costs and benefits to the sole CBH. Indeed, there are other explanatory factors to a cultural visit, especially if the monument is situated in a crowded tourism area (hence the importance of correctly delimiting the site and the impact area, for instance, the interest of studying the castles along the Loire as a collective with the cities of Blois or Tours).

124. **Examples** of impact analysis in the economics of the arts.

In 1981 David CWI<sup>30</sup> analysed 49 major art institutions across 6 American cities during one year. Total direct effects accounted for 69 million dollars, to

<sup>30</sup>CWI, D. (1981), *The economic Impact of the Arts A Study of 49 Cultural Institutions in six US SMSAs*, Research Report, Washington, NFA.

which secondary effects added another 129 million dollars in business income and 49 million in personal income. The extremely favourable results of CWI's analysis induced other authors to do the same for artistic events like the Edinburgh festival, the Aspen festival, etc. All authors conclude on the importance of the impact of cultural activities, the benefits of which go mainly to the real estate business, professional and commercial services, restaurants and hotels, transports, educational services, banks and insurance companies<sup>31</sup>.

125. An example of impact analysis for a given CBH can be found in a study of the Belgian city of Diest for the Belgian King Baudouin Foundation<sup>32</sup>.

Inspired from the ADEP (for Analyse de la Dimension Economique du Patrimoine) method, the study of Diest proceeds in successive steps :

Phase 1 describes the CBH under scrutiny (as a monument, its juridical status, its fiscal status etc. following the definitions mentioned in the introductory part of this work), its physical and urban context.

Phase 2 formulates the collected data in the form of an "evaluation grid", indicating the various flows of costs and benefits induced by the CBH. The flows are ventilated according to their source, that is, the particular use of the CBH that is involved.

Impact analysis is realised in current prices, in order to give a picture of the current state of the CBH. In the case of Diest, the total impact of the presence of the CBH in 1987 amounted to ca. 75 million BEF.

126. **In short**, impact analysis provides quantified data for :

- direct effects, mainly of touristic origin (entrance fees, number and sometimes types of jobs, number of jobs translated into monetary income, tourism turn over, rental value...)

- indirect effects of CBH related services (% of the turnover attributable to the attractiveness of the CBH, per capita expenses of tourists in bars, cafes, restaurants, souvenir shops etc.).

Induced effects on agents # 3 are tackled briefly in a qualitative manner, if mentioned at all. As such, impact analysis concentrates on agents # 1 and 2.

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<sup>31</sup> OWEN, W.L. and W.S. HENDON (1985), *Managerial Economics for the Arts*, The University of Akron, Akron.

<sup>32</sup> Koning Boudewijnstichting, *Economische en fiscale aspecten van de Monumentenzorg*, Brussel 1990.

127. That impact analysis is a powerful device is demonstrated by CWI's analysis where he shows the considerable effects of cultural institutions on local economies. Estimating the direct effects of a particular art event or cultural institution offers the advantage of availability of data. Unfortunately, when it comes to indirect and induced effects, one is obliged to make assumptions on the quality and reliability of largely uncontrollable data.

128. From a **policy standpoint**, the impact study provides little useful information : policy makers may use it to argue for preserving or even increasing their budget, but they are not told what the result of a budget increase or decrease would be. Contrary to cost-benefit analysis, impact analysis does not compare alternative projects, which simplifies its methodology, but limitates its interest. Indeed, if it gives a current picture of the agents and activities situated around a given monument, it cannot go much further.

The very favourable results obtained through impact analysis must be considered objectively : first, theses analyses were made on successful sites, the impacts of which were likely to be important from the start; second, by simply adding up the benefits, they are unable to prove whether the CBH really creates wealth and employment or if it simply displaces them.

129. In our view however, impact analysis has an important role to play : it should not be restricted to quantifiable, direct or indirect impacts. Instead, it should enumerate the multi-dimensional impacts of the presence of the CBH, and as such, tackle socio-economic, but also cultural, environmental and distributional impacts of the CBH. It could even be used as a prerequisite for project evaluation : before analysing the costs and benefits of a particular project, one should list the agents concerned and the importance of the CBH in their life. It is only after this important step that the analysis of a particular project should be undertaken, by **translating the impacts into costs or benefits**. In this sense, impact analysis and cost-benefit analysis are no longer substitutes, but become complementary.

#### \* COST-BENEFIT ANALYSIS

130. The peculiar character of **CBH-related projects**.

Experience has shown that urbanisation, industrialisation, pollution and budget cuts all point toward a situation in which cultural resources, historic

monuments and archaeological sites are threatened with rapid degradation for lack of intervention.

It is true that the benefits of a preservation policy are not immediately perceptible, and it is only recently that a consciousness of the necessity of maintaining our heritage has emerged. Starting from the basic principle that the CBH must be preserved as much as possible, economic analysis can become a powerful tool for the responsables of rehabilitation projects, by showing that the sum of benefits for the collectivity are superior to the costs. Supporters of accurate (and hereby expensive) protection of the CBH face three major constraints :

131. Contrary to other forms of cultural heritage, the cultural element is here intimately related to the *building*; the principles of conservation will then become dependent of the real estate character of the CBH, in particular its life cycle.

Indeed, from the construction on, each building fights against one form of obsolescence or the other :

- structural (the physical state of the building in itself)
- functional (the original use becomes obsolescent)
- situational (the situation of the building no longer corresponds to its initial use, e.g. because of urban changes)
- environmental (the use of the building is hampered by externalities, like noise or air pollution)
- temporary (e.g. flood or earthquake)

132. Whatever the form of obsolescence, the owner/occupier may decide to "renovate" structurally, by changing the use, or by modifying the environment. The owner/occupier then becomes a manager and takes decisions based on expected financial costs and returns. But the *collective aspect* of the CBH prevents him from acting reprehensibly in the eyes of the collectivity. The notion of propriety here does not exactly correspond to the usual one.

133. This particular notion of propriety obliges him to obey some *rules* dictated by a legal framework intending to protect the CBH. Indeed, being the owner of a listed monument restricts the use that you can make of your own good and induces particular constraints. The fact of listing takes the CBH out of the classical economic network, modifying the criteria by which

the investment is to be judged. The investment will then be submitted to restrictions or benefit from some form of public encouragement. Needless to say, the viability of the project will depend on the nature and quality of the CBH involved, and of the particular demand that it generates. Generally speaking, the profit element will be less important for restoration than it would be for reconstruction, hence the necessity of public intervention.

134. Various **levels of conservation** may be envisaged, according to the following categories<sup>33</sup> :

- indirect conservation : prevention of important deterioration through programs of regular maintenance,
- preservation of the building in its current state,
- direct conservation or consolidation : by adding supportive material in the existing structure in order to improve stability,
- restoration of the building in its original state and/or use,
- rehabilitation : adaptation of the old building to a contemporary use,
- reproduction of damaged or missing elements,
- reconstruction or duplication of a damaged original (after major destruction).

135. Project evaluation implies the introduction of **new agents** in our list :

- the promoter/entrepreneur (public or private)
- the landowner
- the financier
- the building industry at large, with the many professionals involved
- the possible donator.

They can be listed as agents # 1, as they are directly concerned with the project.

Possibly conflicting interests of these agents will have to be taken into account when evaluating the effects of a CBH-related project. Logically, each agent will want to ensure the largest possible positive relationship between his financial contribution and the expected return, although non-financial factors may intervene in the decision (if the donator finds prestige a sufficient reward, for instance).

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<sup>33</sup> computed by FEILDEN, B.M. (1985), "Architectural and urban Conservation : a Review of the State of the Art", in DIX, GERALD and TARN (eds), *Design and Conservation in the City*, Liverpool University Press, Liverpool.

136. Project evaluation aims at distinguishing, among the impacts listed for a project, the main costs and benefits emanating from the project, for all economic agents concerned. It allows integration of long term investment for a given collectivity and takes into account not only financial but also social benefits. It forms a part of the so-called "cost-benefit analysis" family. Cost benefit analysis has been applied to many fields (education, transports, justice...) where public sector decisions have to be taken relating to investments in goods and services which have no market price, but what happens in the case of the CBH ?

137. The analysis essentially answers two types of questions :

- do we do the project at all ? The deciding agent has to choose between the "do nothing" and the "do something" options;
- why do the project this way ? The deciding agent has to choose between alternative outcomes, say between project A and project B.

138 The distinction has to be made between financial and economic analysis.

When tackling a project (whether it implies a choice between do nothing, do something, or how to do it), we can proceed in two ways :

- evaluate the sum of positive or negative dimensions attached to the project, and sum them up in order to obtain the collective net surplus for a given community, or
- establish financial budgets for each agent, thereby losing the collective surplus but obtaining the way in which individual agents react to the decision.

139. Taking this particular distinction into account, LICHFIELD (1988) proposes the following classification of methods :

- **financial analysis (FA)** : evaluates the expected cost/return couple from the point of view of the promoter;

- **social financial analysis (SFA)** : evaluates the expected cost/return couple, but this time from the points of view of all agents concerned by the project (i.e. the consumer, the subsidising authority);

- **cost revenue analysis (CRA)** : a particular variant used by local or central government to compare the financial costs they need to find out of taxes for conservation, with the fiscal revenues that would result;

- **cost benefit analysis (CBA)** : the local government takes into account not only financial but economic costs and benefits to the community;

- **community impact evaluation (CIE)** : evaluates the expected cost/return couple from the points of view of all agents concerned by the project and direct/indirect/induced impacts on the social welfare, implying a broadening of the scope.

140. Generally speaking, financial analysis and social financial analysis evaluate *on site* changes, whereas cost benefit analysis and cost revenue analysis evaluate the same on site changes *plus selected off site* changes, and community impact evaluation evaluates *all on site and all off site* changes. That is why LICHFIELD says that all methods "nest" in CIE and why CIE is labeled the "generic method".

These various tools of analysis can be regarded as members of the cost-benefit family of methods, but while financial analyses have been carried on on a large scale in the general framework of project analysis and evaluation, examples of the other types of analysis are much less numerous.

141. Table 3 presents a list of costs and benefits according to the categories of agents. It has been built on the model of Table 2, this time incorporating the impacts of a CBH-related project<sup>34</sup>.

The literature in cost-benefit analysis introduces the notions of **primary, secondary and "intangible"** costs and benefits, but these notions do not run parallel with the distinction previously elaborated between direct/indirect/induced effects.

142. It could be useful to remember that a direct effect implies a direct relationship between the CBH and agent # 1 : the agent either owns the CBH, lives or works in it, visits it..

Indirect implies that agent # 2 is off site, but influenced by the CBH. Induced effects affect agent # 3, who is linked to the CBH via agent # 2.

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<sup>34</sup>Cost-benefit analysis as such has never been applied to the CBH, although fragmentary elements exist, for instance in Luxemburg, the Service for Sites and national Monuments has calculated the economic impact of the restoration of two castles (Bourglinster and Vianden). Restoring Vianden had cost 140 millions BEF. Each year, the castle attracts an average of 220 000 visitors, spending 13 millions BEF in entrance fees. But each visitor spends about 100 BEF in the city, which means an additional 22 millions.

143. On the other hand, "primary" means that there is a straightforward relationship between a consumer and a producer or provider : any form of direct transaction such as admission fees, souvenir purchases etc. fall into this category.

"Secondary" effects are brought about by primary effects : for example, allied services such as food, merchandise retailing, transportation and other sectors of the economy may benefit from the development of a historic site.

"Intangible" effects are qualitative results on the welfare of the agents involved in the project.

**Table 3. Costs and benefits of a CBH related project according to the agents involved**

Suppliers/Producers	Cost (-) or benefit (+)	Demanders/Consumers	Cost (-) or benefit (+)
<b>Agents #1</b>			
Promoter, landowner, professionals	I. + Profit		
Local authority on site	I. - Subsidy II. + or - Taxable base III. + Prestige		
Owner on site	I. + Increase in real estate value I. - Maintenance costs I. + Rentals I. + Donations II. + or - Taxes (1)	Resident owner	I. + Increase in real estate value I. - Maintenance costs I. + or - Externalities (3) I. - Costs of removal II. + or - Taxes (1) II. + Quality of life II. + Improved public services II. + Energy conservation III. + Neighbourhood cohesiveness
		Tenant on site	I. - Rent increase I. + or - Externalities (3) I. - Costs of removal II. + Quality of life II. + Improved public services II. + Energy conservation III. + Neighbourhood cohesiveness
Producer of CBH services on site	I. + Admission fees I. + or - Externalities (3) I. - Maintenance costs II. + Quality labour II. + Stimulated investment	Tourists/ Visitors CBH services users	I. + Consumer surplus I. + Value of unpaid adm. III. + Aesthetics
<b>Agents #2</b>			
Owner off site	II. + Land value spillover	Tenant off site	II. + Land value spillover II. + or - Externalities (3) II. - Rent increase II. + or - Quality of life (2) II. + or - Externalities (3) III. + Improved public services
Local authorities off site	II. + or - Taxable base(1) III. + Prestige		

Producer of CBH services off site : - Guide, performing artist - Travel agency etc	II. + Visitor flows (+ Receipts) II. + Quality labour II. + Stimulated investment	Tourists/Visitors	II. + Tourism II. + Services
Agents #3 Employees of agents #1 et 2 Suppliers and caterers of agents #1 et 2 National economy	II. + Employment II. + Sales II. + Multiplier effect	National citizens	III. + Prestige (endowment effect) III. + CBH values (education, heritage...)

Inspired from LICHFIELD (1988).

(1) depends on the authorities' attitude towards the CBH (tax exemptions or not)

(2) could be (-) due to negative externalities

(3) Negative externalities : noise, pollution, parking problems... vs. positive externalities prestige, option, heritage value

144. The term "social" was introduced before in relationship with social financial analysis, meaning taking into account the repercussions on agents not directly involved in the project decision. However, social financial analysis only dealt with agents and effects *on site*, it did not consider the impacts of the project on the whole community. A full analysis would have to encompass all relevant externalities and spillovers : this is what community impact evaluation does. The general objective is here to ventilate all costs and benefits on the various sectors implied in the project. In this way, both the efficiency and the equity aspects can be considered. It is not necessary that all gains and losses are represented in monetary units; even an ordinal scale can be used. Given the various objectives of the various groups, an ordinal ranking procedure can be employed to determine the most desirable plan.

CIE relies both on impact analysis and on cost-benefit analysis, as it takes all kinds of impacts into account, and translates them into costs and benefits, but it goes further by embracing all impacts affecting the welfare of the whole community.

\* MULTI CRITERIA ANALYSIS<sup>35</sup>

145. The recently developed multi-criteria analyses and multi-objective decision models are beginning to receive much attention and seem to be a

<sup>35</sup> NIJKAMP, P. and A. VAN DELFT (1977), *Multi-Criteria Analysis and regional Decision-Making*, Martinus Nijhoff, Leiden.

new opportunity to arrive at a balanced analysis of all facets of modern planning problems, particularly because many intangibles like social effects and environmental repercussions can be taken into account.

We could say that there are roughly two classes of evaluation method : the first class includes methods which attempt to compute in an indirect way monetary values for the different project outcomes (examples are cost benefit analysis, cost effectiveness analysis, planning balance sheets). The second class of evaluation methods starts from a different point of view. Instead of a monetary transformation of all different project outcomes, non-monetary evaluation methods attempt to take into consideration the multiple dimensions of a decision problem. When project effects are treated in their own dimensions, the obvious problem arises of how to weigh against each other the various project effects. Clearly, such a weighing procedure depends on the relative priorities attached to the various decision criteria for the plan concerned. These methods are, therefore, also called multi-criteria methods. Examples of these methods are benchmarking, spider models, meta-regression analysis, regime analysis, flag models, and rough set analysis.

Any of these procedures could be fruitfully applied to the CBH, separately or complementary.

*For more on this see Nijkamp, Bal and Medda, 1998.*

146. Used alone or in combination with others, the cost-benefit method remains our hope for a future analysis of the CBH, although, as we have tried to show, impact analysis has advantages that could make it a prerequisite for the detailed study of costs and benefits. But, as GREFFE warns, showing an economic dimension is one thing, say that one will explain everything with economics is another.

147. The only way to escape obvious problems is methodological rigour, but we must acknowledge the obstacles still to overcome :

\* The important distinction between primary/secondary/intangibles is not the same for each author.

\* There are in fact two versions of CBA : a "maximum" version (large primary benefits and extensive use of multipliers) vs. a "minimum" version (strict segregation between primary and secondary, no use of multiplier). The second seems to be the safest, as many authors warn against the use of multipliers, considered as dangerous, especially in a subjective,

emotional matter as the CBH. It seems better to leave induced effects in a qualitative form than to apply inconsiderately an erroneous multiplier.

\* Distributive effects are not taken into account by the analysis. Even if the net effect on the community is positive, it is possible that some groups may lose. For instance, the conservation project may displace poorer people and replace them by a middle income group. Shifting of income upward is a significant problem of cultural expenditures, and some analysts feel that it has to be alluded to and mentioned to the deciding agents.

\* The estimation of the project life time, as well as of the social rate of discount is generally overloaded with uncertainties. Since no one knows exactly what is the entirely correct discount rate to use, the usual practice is to take a low average rate of return from a structure of market interest rates and add this to costs each year.

It has been argued that the pertinent social rate of discount is not adequately chosen in the case of CBH. Developers are discounting at market rates, and as the heritage aspect is non detachable from the building, its value is also discounted at that rate. It should be discounted at a lower rate or not at all in order to reflect social preference.

\* The interdependence between project effects is difficult to assess, making it difficult to gauge the shadow prices of public investments.

\* The notion of utility surplus is also a difficult matter, including the delicate problem of their aggregation.

148. The problems are so important that HENDON asks<sup>36</sup> : is an incomplete measure better than none at all ? Proponents would argue that "we measure what we can and (..) in most benefit-cost applications we can measure most of the significant economic facts", while opponents judge a poor measure influenced by double counting worse than nothing at all.

We believe that, despite the difficulties and the widely spread belief that "you cannot put a price on art", a deeper analysis of the CBH is worth the try.

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<sup>36</sup> HENDON, W.S. (1983), op.cit.